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CANNERS' LABORATORY NUMBER

THE CANNER AND DRIED FRUIT PACKER

Vol. XIX. No. 12. CHICAGO, THURSDAY, OCTOBER 6, 1904. Whole No. 506

AMERICAN CAN COMPANY

Principal Sales Offices

NEW YORK
Bowling Green Building

BALTIMORE, MD.
Merchants' Bank Building

CHICAGO, ILL.
Merchants' Loan and Trust Building

SAN FRANCISCO, CAL.
214 Mission Street

Steady Prices for Cans Mean Steady Prices for Canned Goods

Sales Office for the Territory Including New York, New Jersey and New England

AMERICAN Can Company

Bowling Green Building. NEW YORK

Southern Division: Merchants' Bank Building

BALTIMORE

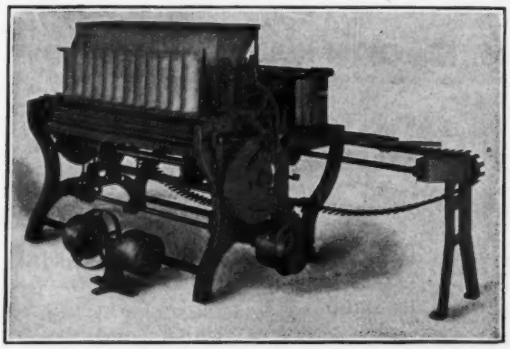
STEADY PRICES FOR CANS MEAN STEADY PRICES FOR CANNED GOODS

American Can Company

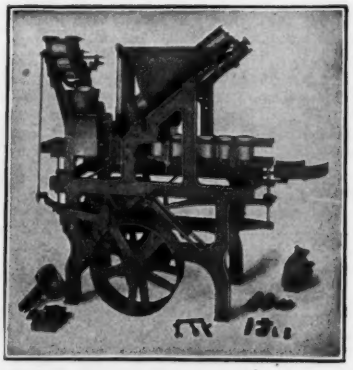
Quick Shipments Best Goods

CAN FILLING MACHINES

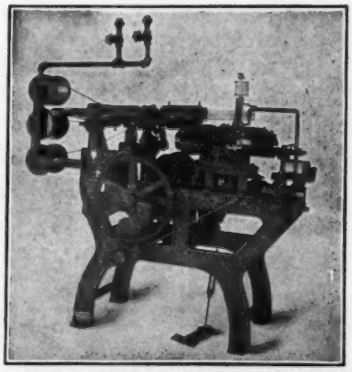
Automatic Can Making Machinery



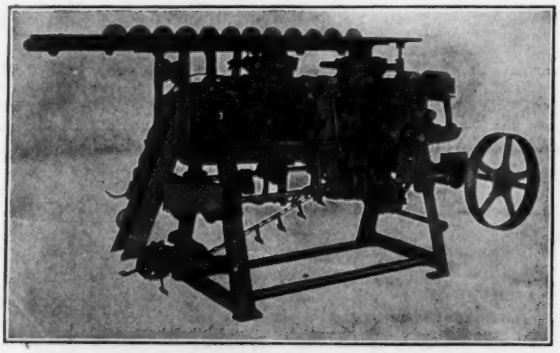
BALLARD AUTOMATIC PEA FILLER AND BRINER



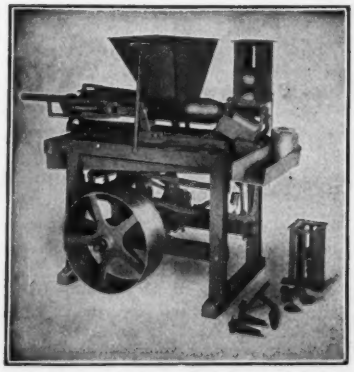
KING FILLER, WITH ATTACHMENTS



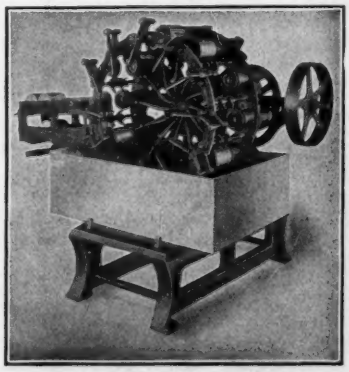
AUTOMATIC SEAMING MACHINE



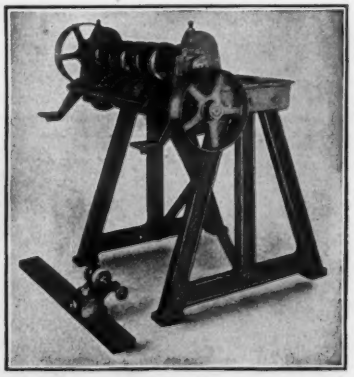
AUTOMATIC FLUXER, HEADER AND CRIMPER



STEVENS TOMATO FILLER



AUTOMATIC CAN TESTER



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Note.—We cover all jobbing points tributary to these cities. No better equipped brokerage firm in the west.

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built in any length for 75 to 200 peelers, also *Elevators* and *Conveyors* for handling green corn, husks, cobs, cans, crates, baskets, boxes, slops, etc.
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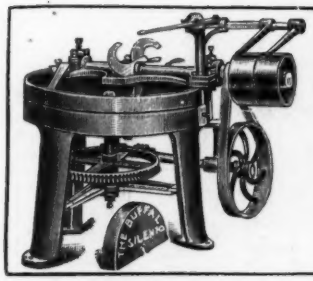

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FASTEST CUTTER IN THE WORLD

for cutting all kinds of vegetables, pickles, onions, cabbage, etc. for mincemeat, piccallili, meats, etc.

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Fastest in the world, Send for circulars.

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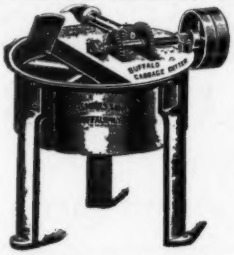

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BEST IN THE WORLD

Saves 20 per cent of your cabbage by using Core Cutter, already used by all large manufacturers. Write for particulars

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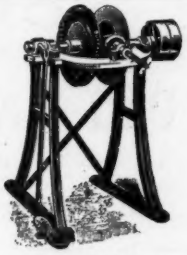

2 sizes, 600 to 2000 head capacity

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London Joint Stock Bank, Ld.
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Correspondence Invited.
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Should be pleased to hear from Canners with quotations on such goods as they have to offer for this market.

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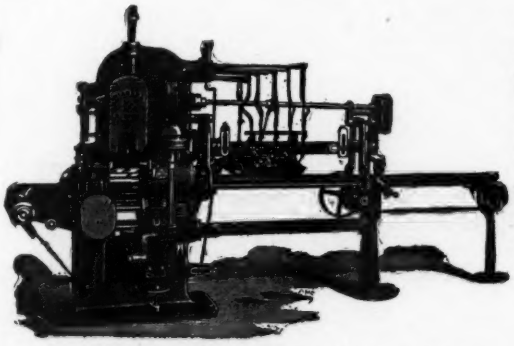

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Capacity, per day of 10 hours.....30,000
Smallest diameter of Can Body.....2¼ inches
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Automatic Can Making Machinery

Body Maker, Floater, Tester
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Presses and Dies
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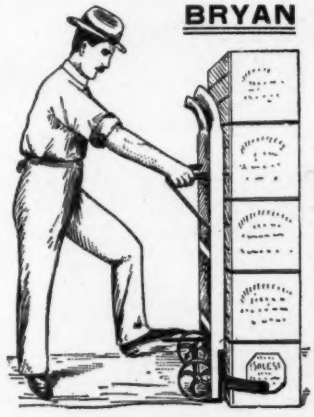

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For Canners, Packers, Wholesale Houses and Manufacturers

ORANGES, LEMONS, APPLES, ETC.

The Bryan Adjustable Clamp Truck clasps the boxes on the side and lifts them without necessitating tipping up the whole pile of boxes. ... One man can handle 25 per cent more boxes a day than with the old style truck; besides breakage of boxes is done away with. ... It will save more than its cost each season.

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A New Improved Truck
Saves Time, Boxes and Labor Expense

FOR SALE BY
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Canton Box Company

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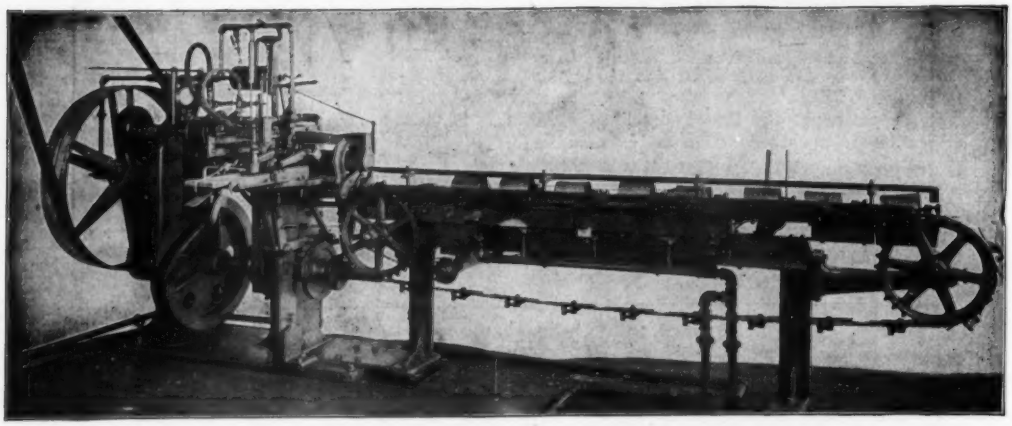
Car Loads or Cargo
Made up or in Shooks

Dove Tailed, Lock Corner or Nailed

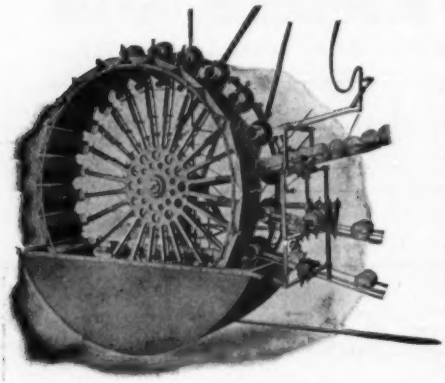
The Leiger Lock Seam Body Forming and Soldering Machine



Daily capacity (10 hours) 25,000 to 30,000 can bodies, perfectly round and of uniform diameter.

This Seamer is rotary and something entirely new in principle. It is self feeding and equipped with automatic stopping device, which acts instantaneously and surely in case tin is too short. This positively does away with clogging, a difficulty frequently experienced with other machines built for the same purpose.

The LEIGER CAN TESTER



Capacity—25,000 to 30,000 cans every ten hours.

This Tester needs no operator, being entirely automatic. Will test either square or round cans with equal accuracy and speed.

These machines are undoubtedly superior to anything of the kind now on the market.

We are in position to furnish complete outfits for can making of best quality and lowest cost.

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L. BENEDICT

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FOR

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We are prepared to design and furnish COMPLETE OUTFITS for handling products from the field through the entire process of canning and packing

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Conveyor for Baskets, etc.

PEARSON COATED NAILS

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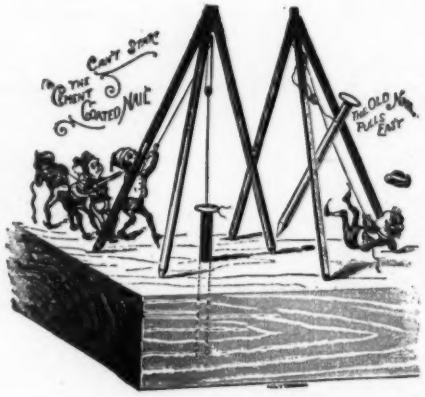

HARD TO PULL

If erected with Pearson's Coated Nails, canning factory buildings will **"Last Longer and be Stronger."** The coating protects the nails from rust and adds two hundred per cent to their holding powers.

In laying floors the annoyance of loose boards can be saved by using our new **"Leader Flooring Nails."**

The package department in a canning factory is an important one, and in this department we can save you money, as **coated nails are cheaper than common nails in price,** and on account of their superior holding power your boxes will hold together in spite of careless handling in transportation, and you will have fewer claims for damages from this cause.

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Box Strapping

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ALL KINDS

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C. H. HANSON

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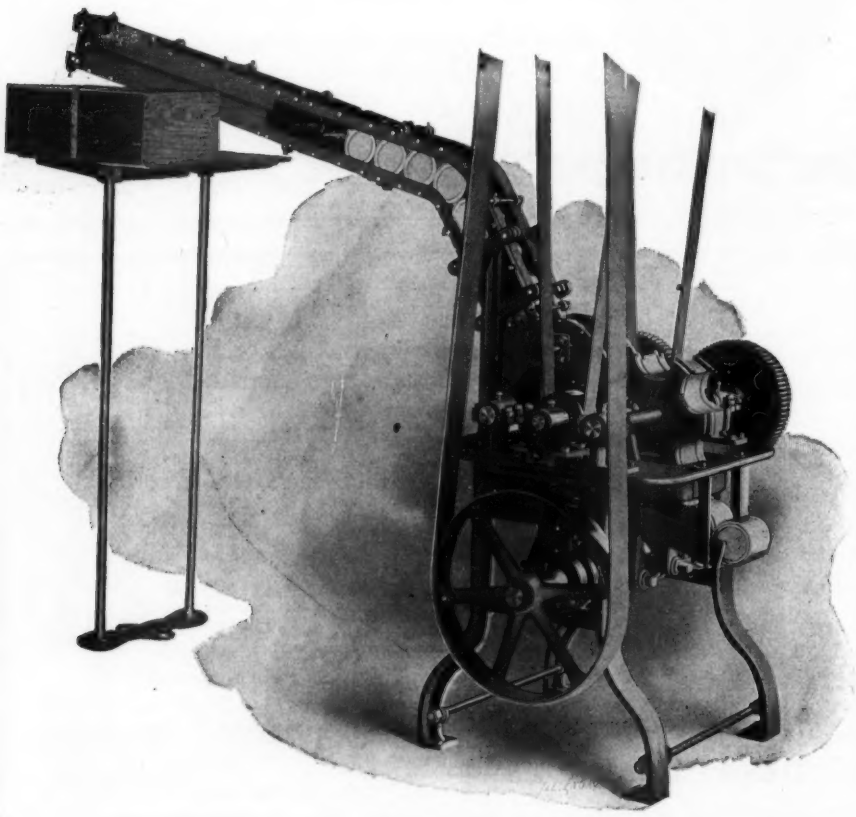
The CAMERON HEADER

WITH the Cameron Automatic Heading Machine, we believe we have the best and the simplest header on the market. The working part of the machine consists of two wheels, chuckwheels, each with six semicircular pieces cut out of the periphery. These two chuckwheels revolve against each other and stop every time a semicircle, cut out of the periphery of one wheel, comes opposite the semicircle from the other wheel, in which position the cam is firmly held, the body forming a true circle, while the ends are pushed



on the body and the edges crimped down for a flaring edge or rolled down for a snap-fit end. No extra machine to roll down the edges is needed, when our machine is used. The bodies as well as the ends are fed into the machine through a chute. and when the cans are headed, they drop into the chute, that carries them to the floater. The header is constructed, so it can be used either as a crimper header or a snap-fit header. It is the most simple header on the market in its construction, works automatically with positive movements and has a guaranteed capacity of 40,000 cans in a day of 10 hours.

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Endorsed by the most prominent authorities in the medical world as being MORE healthful than CANE SUGAR for use in the packing of food products

You have used it for the past six years; you can still use it

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J. T. POLK COMPANY.

Write for Prices before placing your Order

WHEELING CAN COMPANY

OLIVER J. JOHNSON, MANAGER

FORMERLY WITH
SPRAGUE CANNING MACHINERY CO. AND UNION CAN CO.

WHEELING, W. Va.

MOORE & McFERREN
BOXES
are GOOD boxes

Made of Cottonwood Lumber

HANDSOME LABELS are not in keeping with unsightly boxes. The Moore and McFerren boxes are sawed and planed boxes, clean and well made up, and superior in EVERY RESPECT to the cheap veneer boxes used by some manufacturers.

We shall be pleased to call on or correspond with you in regard to your future business.

Moore & McFerren

HOOPESTON, ILL.

SWEET CORN
3,000 ACRES

CUCUMBER SEED

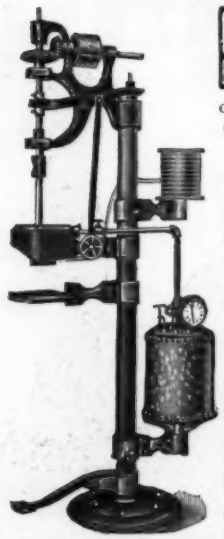
Now being grown by us this season expressly for CANNING and PICKLE Trade

If you have not placed your contract order for your requirements in above line of specialties for planting season of 1905, write us

Western Seed & Irrigation Co.

FRANK T. EMERSON, Gen'l Mngr. FREMONT, NEB.

High Pressure Single Steel Capping Machine



THIS Machi e is designed for large as well as small packers.

Will do patching as well as straight capping.

Can be operated by GIRL of ordinary intelligence, thus reducing the cost of patching or capping.

Is adjustable to any sized can.

Can be used to seal any package that has a round opening to be soldered.

Capping steels are raised and lowered by foot pressure, thus leaving the hands of the operator free to place cans in and out of position.

All parts are adjustable and interchangeable.

Will run with the least possible care.

Fool proof.

A complete Machine in itself.

Portable, and can be moved to any part of factory or storeroom and set up in a very few minutes.

Gasoline Machine has five-gallon tank tested to 150 lbs. water pressure, fitted with pressure gauge and large floor pump.

Fitted with extra heavy pipe and fittings. Burners adjustable to any required heat. Stand for cans can be fitted with a track or conveyor to supply and take away cans. Can be fitted with our Automatic Solder Feed, thus insuring the right amount of solder to be used, at a cost of $10.00 extra——*Price, each machine, $75.00*

Manufactured by

The National Cement & Rubber Mfg. Co.

TOLEDO, OHIO, U. S. A.

Condensed Paste & Powder

CHEAPER than flour paste. Being dry it saves freight and can be shipped in mid-winter. One pound will make in one minute two gallons of snow-white paste, where boiling water or steam can be had. It makes three times more PASTE than cold water Paste Powders.

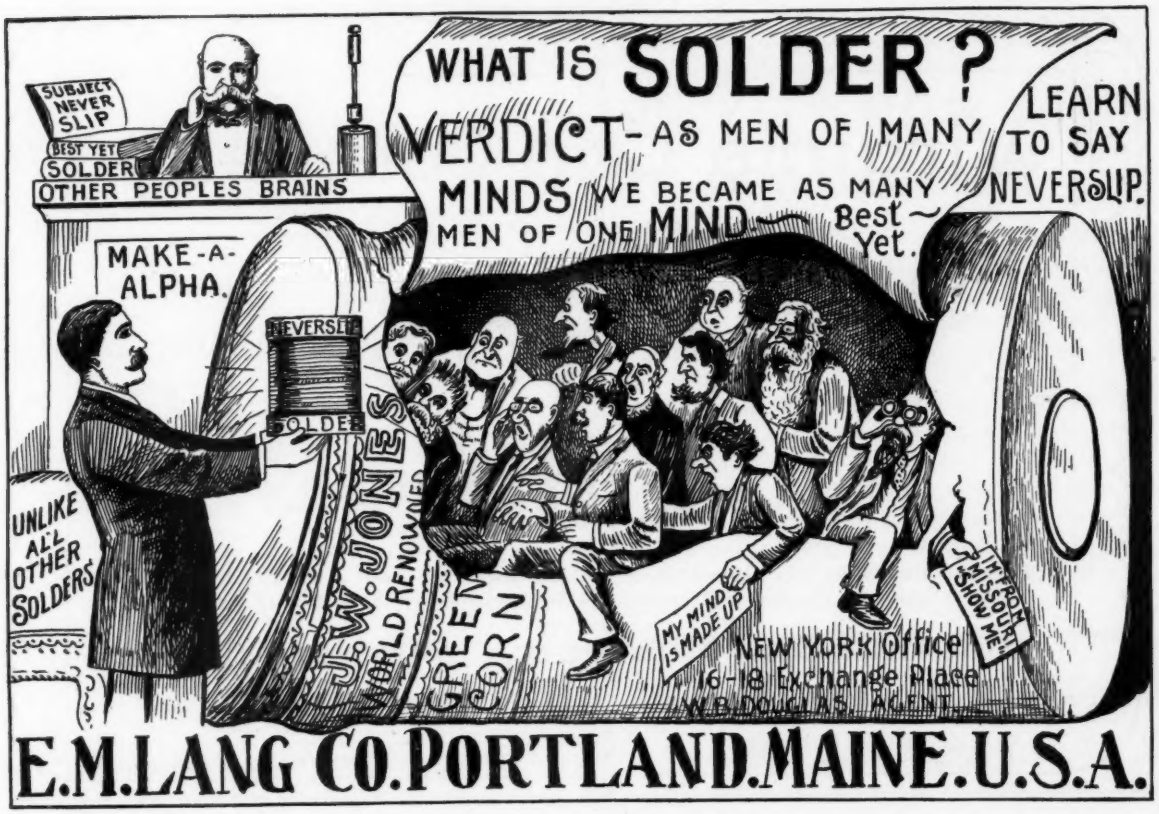
PRICES: In barrels of about 240 lbs. - - *6c* per lb.
In 50 and 100 lb. packages - - *8c* per lb.

Tinnol

For lacquered and plain white tin. Prevents rust spots and does not affect the most delicate colors. Keeps sweet in any weather and does not warp or wrinkle the paper. The BEST paste for tin in the market. Has to be reduced with 50% of water. PRICE, in casks, *37c* per gallon.

THE ARABOL M'F'G. CO.

100 WILLIAM STREET, NEW YORK



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✠ C. L. Kunz, V.-Pres. ✠ C. Madson, Sec. and Treas. ✠

THE M. G. MADSON SEED CO.

Seed Growers AND Merchants

Specialty of Growing PEAS for the Canning Trade

CORN

TOMATO PLANTS

Office and Warehouse: MANITOWOC, WIS.

Seed Farm and Green House: MADSON STATION, W. C. R. R.

WE BUY TIN SCRAP

LAST WASTE ANY SIZE OR SHAPE ✠ ✠

WRITE TO US

THE VULCAN DETINNING CO.

157 Cedar St., NEW YORK, AND STREATOR, ILL.

"Valve-Oleine" 675 Degrees Fire Test

MASTER MECHANICS, Purchasing Agents, Engineers and Practical Builders of costly Steam Plants and Locomotives, etc., will be pleased to know that a Lubricant is now produced of such extraordinary high fire test as to make it proof against the great heat to which it is subjected, and is therefore, a PERFECT lubricant where products of lower grade and fire tests pass off at once, leaving the parts subject to wear, or greatly increasing the consumption of oil. "VALVE-OLEINE" is a product in the highest state of filtration, is of the greatest viscosity, is entirely free from acids and absolutely non-corrosive and without doubt the finest and most thoroughly reliable CYLINDER LUBRICANT now on the market, and will naturally lubricate 200 to 300 per cent more than products of lower test. ☞ It is not only the BEST but the most ECONOMICAL lubricant. Manufacture and sale controlled exclusively by

The Reliance Oil & Grease Co., Cleveland, O.

Cable Address "Oleine," Cleveland, Ohio, U. S. A.
Private Code, Lieber's, and A. B. C., 4th Edition.

Agents wanted everywhere. Write for *full particulars* and *our new catalogue* of large line of products. *Samples free.* Send 2c stamp for *"Gems of Art"*—Free on application direct from machinery users.

Virginia Can Company

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Packers' Cans

Packers who have not placed their orders and who want a strictly high grade can and prompt deliveries are invited to correspond with us.

Virginia Can Company, Buchanan, Va.

If you are going to do business next year

READ THIS from one of the largest packers of New Jersey:

CEDARVILLE, N. J., September 21, 1904

REMINGTON MACHINE CO., WILMINGTON, DEL.

Gentlemen:—Referring to your Continuous Capper, of which we have three in operation, two at Cedarville factory and one at Tuckahoe factory, we would say that they are the best machines we ever used. We cap cans on them that have a 2 9-16 inch opening and they do excellent work, capping as high as one hundred cans without a leak. They are easily adjusted and require but very little attention.

If we should need more machinery we certainly would want one of these machines.

Yours truly,

[Signed] JOHN E. DIAMENT COMPANY,
Geo. E. Diament, Treas.

J. M. Colbert, Sales Agent

Remington Machine Co., Wilmington, Del.

G. A. Poppelbaum & Co.

36 LA SALLE STREET, CHICAGO

MANUFACTURERS OF

Glass

JARS, BOTTLES AND TUMBLERS for Canners and Packers of Food Products

WE MAKE A SPECIALTY OF VACUUM JARS

Write us for prices

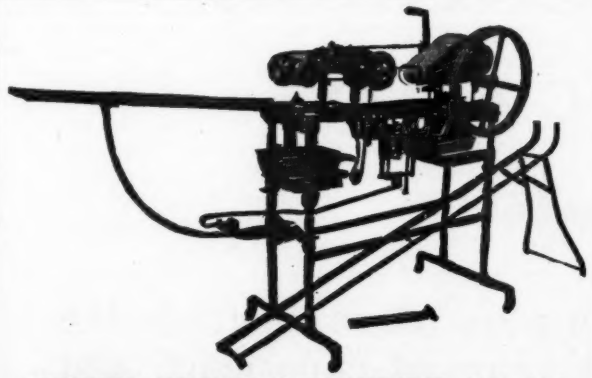
Do You KNOW Your Own Business?

What a question! But do you know all about it—everything? If you do, you know what will absolutely prevent fermentation in Tomato Pulp and Tomato Ketchup. Do you use crude chemicals of any kind? If you do, there is still one thing you can learn that will save you money and that is that PRESERVALINE IS BETTER—a thousand times better, a thousand times safer and absolutely sure. It is guaranteed. It contains no salicylic acid. It prevents spoiling. It keeps good goods good. Write us a card and ask about it. That will cost you a penny and a minute of time. The information is free. Write now—it's worth while.

The Preservaline Mfg. Co.

CHICAGO, 190 Michigan St.
NEW YORK, 43 Warren St.
San Francisco, 443 Third St.

USE A LEISTER LABELER



A SUCCESSFUL LABELER AND AT THE RIGHT PRICE—Style A labels 1-lb. cans; Style B labels 2-lb. cans; Style C labels 3-lb. cans.

NO PREVIOUS EXPERIENCE IS REQUIRED to operate the Labeler. It can be operated by following the directions that come with it.

FOR SALE by the Canning Machinery Houses in the leading cities in the United States.

AND PUT

Dollars in Your Pocket

BECAUSE,

1st. With this Labeler your goods can reach the market in the shortest time and get the highest price. You know, a few days delay often means a great loss.

2nd. Your stock will reach the merchant cleaner, neater, and more attractive. Hence customers will ask for your goods.

3rd. A reduction in the cost of your labeling must be of some interest to you.

CONSIDER WELL!

Your loss by inferior labeling of this year's pack may mean more than the COST OF SEVERAL OF OUR LABELERS.

Write us for further information

THE ATLANTIC MACHINE WORKS, Main Office and Factory Westminster, Md., U.S.A.

BRANCH OFFICE
327 N. Calvert S., BALTIMORE, MD.

PHILADELPHIA AGENT
GEO. E. LOCKWOOD, 308 Chestnut St.

STEADY PRICES FOR CANS MEAN
STEADY PRICES FOR CANNED GOODS

AMERICAN CAN COMPANY

DEPARTMENT PACKERS' CANS.

CENTRAL DISTRICT:

Ohio to Utah Inclusive

Merchants' Loan and Trust Bldg.

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CHICAGO

The American Can Company offers the trade the best possible can that years of experience and the most modern machinery can produce. Our facilities for the manufacture of cans are practically unlimited. The thorough organization of our Transportation Department insures prompt delivery and our Sales Department will give you prompt and courteous attention.

The Canner and Dried Fruit Packer.

Vol. XIX. No. 12. CHICAGO, THURSDAY, OCTOBER 6, 1904. Whole No. 506

THE CANNER AND DRIED FRUIT PACKER

with which is incorporated TRENCH'S CANNERS' INDEX

PUBLISHED EVERY THURSDAY BY

THE CANNER AND DRIED FRUIT PACKER PUBLISHING CO.

22 EAST RANDOLPH STREET, CHICAGO

O. L. DEMING, MANAGER J. J. MULLIGAN, EDITOR

SUBSCRIPTION RATES

United States and Canada, one year... ..... $3.00
All Foreign, one year..... 5.00

Remittances may be made by Post Office Order, Registered Letter. Check, Draft, Express Money Order, or Order on the House in Chicago with which the subscriber is doing business.

CORRESPONDENCE

Correspondence upon all subjects of interest to the trade is solicited Items of news, both personal and general, are always interesting, and we wish each subscriber to assist in making *The Canner and Dried Fruit Packer* the newsiest journal in the trade.

In correspondence, writers will observe the following regulations: communications must always be accompanied with the writer's name, as no attention is paid to anonymous letters. A designating mark will be used where publicity is not desirable. We do not hold ourselves responsible for views of correspondents, but all interested are cordially invited to use our columns freely.

Literary contributions are invited from all interested in the advancement of the canning industry. Payments will be made for all special papers on practical, mechanical or scientific subjects of value to the industry which are accepted and published.

ENTERED AT THE CHICAGO POST-OFFICE AS SECOND-CLASS MATTER

Apparently the jobber firmly believes that "All things come to him who waits."

* * *

Now that you have time to look around the factory, you will find or will not find things that you may need. If it's the "don't find" kind, try a CANNER'S "want" ad. It's easier than catching cold.

* * *

Weather prognosticators say that it looks as if we would get a hard frost between now and the first of the year. This report is published with a view of attracting the attention of the Indiana tomato canners who insist that they have plenty of time left yet.

* * *

That pure food commissioner up in Dakota is making too much noise for a mere Ladd. An association is reported to have brought suit against him for $100,000 damages. It's a question, at this writing, whether this is not excessive.

* * *

The newspaper paragraphers are commenting very freely on the report from California that some holders of carryover prunes are feeding the surplus to the hogs, yet numerous boarding-house keepers would no doubt testify that this has been done many times before.

* * *

In this day of utilization of waste we are pleased to learn that the wave of scientific research has finally reached the old and friendless canning factory. The factory at Tunkhannock, Pa., is reported as going through the "born again" process and will soon blossom out as a witchhazel distillery.

* * *

A San Francisco paper says: "Japan will be again in the market for gallon tomatoes. It is quite possible there will be quite a decided increase in purchases from that quarter." Can it be that Japan's purchases of American canned salmon and tomatoes have had anything to do with influencing sentiment in the United States in favor of the flowery kingdom—its war with Russia?

* * *

Mr. H. W. Phelps, who has had general charge of the coast business for the American Can Co., has been transferred to the home office in New York, where he fills the position of general sales agent for the company. Mr. Phelps is eminently fitted for his new duties and is popular with the trade as well.

* * *

We are gravely informed by a New York publication that the factory at Cohoes is putting up "California fruit." Of course, the fruit is grown on the spot, thus doing away with the inconvenience of the long haul from the coast which has hitherto been necessary for securing this desirable fruit.

* * *

Up in Minnesota they are making syrup from pumpkins and the natives seem quite enthused over the supposed novelty. That doesn't hold a candle to the good old days on South Water street when a prime article of syrup was said to be extracted from gum boats. We will admit, however, that they made it syrupticiously. A bottle of Swamp-Root for this.

* * *

Of the goods entering the ports of Cape Colony and Natal in 1903 the following countries contributed: Great Britain, $146,338,823; United States, $30,227,306; British colonies, $21,847,972; Germany, $10,908,567; Belgium, $3,340,054; Holland, $1,653,754; France, $1,151,141. Detailed figures for the present year are not available to show how much the trade of each of these countries has fallen off, but the following statements from a recent number of the British and South African Export Gazette show that Great Britain, with its large trade, has suffered fully as severely as any other nation.

The National Pure Food Congress.

Every reader of the CANNER AND DRIED FRUIT PACKER is deeply interested in the pure food question for the reason, generally considered, that the canner is the more criticized and condemned and charged with adulterating and even poisoning his products for the purpose of gain. The fact of the enormous annual consumption of canned goods, running into the tens of millions of cans yearly, without one authenticated case of poisoning, is a simple and common-sense vindication of the industry and an irrefutable defense against these irresponsible and malicious charges. It is natural, therefore, that the canning trade should be interested in the recent International Pure Food congress held at St. Louis. Lack of space at this time compels only a brief review of the work of this congress.

The first session was held Monday afternoon in the Hall of Congresses and was called to order by the president, J. W. Bailey, who delivered his annual address following the one of welcome by President Francis of the Exposition.

Representatives from thirty-three states, of eight foreign governments and the leading manufacturing interests of the country were present on Tuesday. A general plea for pure food was made.

The addresses were on subjects which are now in much dispute and were listened to with much interest by the audience. No note of the pending difference between the state and national authorities was sounded until Paul Pierce, editor of "What to Eat," said: "The government and state officials have brought about the present efficiency of the pure-food laws. There must be no differences in the standards agreed upon by these officials and at present in force. Any difference will result fatally to the good of pure-food legislation."

It was afterward explained that the state officials, not satisfied with the present national laws, regulating pure food products, intend to introduce resolutions calling for a modification of the stringency of the laws before the end of the session. This, it was understood, the federal representatives would oppose.

The morning session was opened with an address by A. H. Jones of the Illinois State Food commission. He spoke briefly on the results which the congress had accomplished.

After the address the chair announced the following committees on resolutions:

Alcoholic Beverages—J. B. Noble, Percy T. Morgan, Edmund W. Taylor, G. Rosatti, J. O. La Bach, Julius Lieberman and J. H. Sheperd.

Interstate and International Standards—M. A. Scovell, E. N. Easton, H. W. Wiley, H. E. Barnard, R. G. Evans, C. P. Sherwood, Dr. Cordova and Albert Von Stibral.

Legislation—J. Q. Emery, A. H. Jones, A. E. Leach, Horace Ankeny, J. D. Miller, R. O. Eaton and A. W. Fallinger.

Antiseptics and Color—H. W. Wiley, J. H. Sheperd, Sebastian Mueller, V. L. Price, E. F. Ladd, Julius Hartvet and William Berkley.

Drug Adulteration—A. E. Leach, Herman Harmsh, Theodore Wetterstroehn, B. H. Warren, E. A. Eaton, Julius Hartvet and D. C. Vaughn.

Future International Conferences—G. Rosatti, Commissioner General Carlier, Albert Von Stibral, R. M. Allen, Dr. Cordova and Benjamin Vidaurre.

Baking Powders—Horace Ankeny, W. W. P. McConnell, M. A. Scovell, A. C. Morrison, J. W. Mallet, M. Heiner, E. A. McDonald and A. L. Kinsley.

R. N. Allen, secretary of the convention, then delivered an address on "The International Pure Food Congress." He spoke of its organization and of the trip which he made to Germany, England and France to promote the congress. He told of the inspections and analyses of foods in these countries, and concluded by stating that the manufacturers had been called into this conference to give their practical views of the subjects to be discussed.

"Food Laws and Food Inspection in Italy" was the subject of G. Rossati's address and Dr. W. N. Berkley spoke on "Food Laws and Food Inspection in Porto Rico."

The afternoon session opened with a lengthy address by Rufus L. Weaver of New York City on "Interstate Laws." Mr. Weaver explained the different laws in the States for the regulation of the pure-food products and made comparisons of the leniency of certain states on some products and of the prohibitive legislation against these same products in other states.

"National Food Laws and Inspection in the United States" was the subject of an address by Dr. H. W. Wiley, Chief United States Bureau of Chemistry. Dr. Wiley gave the history of the development of the present pure-food laws from the earliest attempt of the federal government to inspect and regulate the importation of tea.

F. N. Barrett of New York city followed with what many of the members of the congress believed was a defense of the manufacturers who used coloring matters in their products. The speaker argued in favor of these acids on the ground that there was too little used to be of any harm to any of the consumers.

Paul Pierce took the opposite side of the question. He decried the use of all coloring matters. He urged the proper labeling of all products.

Scot Bonham, a lawyer from Cincinnati, O., spoke on "The Constitutionality of the Food Control Laws." His address took up the rest of the afternoon.

At the evening session Jay D. Miller of Chicago delivered an address on "The Power and Duty of the State and Federal Government in Relation to Food Laws." Several other papers and discussions were presented.

Adulteration of dairy products was the topic chosen for discussion on Wednesday. The principal address was made by Dr. H. M. Wiley, chief of the United States Bureau of Chemistry. Addresses on the subject of controlling the food supply of large cities were delivered by Dr. Charles Harrington of Harvard and W. W. P. McConnell, dairy and food commissioner of Minnesota. Among those who took part in the ensuing discussion were Joseph G. Newman, president of the Illinois Dairymen's association; Dr. Richard Fischer, state chemist for Wisconsin; Dr. Edward Guddeman, Chicago, and Dr. E. N. Eaton, state chemist for Illinois.

The feature of Thursday's session was the baking powder discussion, in which Dr. J. W. Mallet of the University of Virginia, A. Tressy Morrison of New York and Professor M. A. Scovell, director of the Kentucky experimental station, took the leading part.

Purity in confectionery was discussed by Vincent L. Price of the National Confectioners' association; E. F. Ladd, food commssioner of North Dakota, and Dr. E. N. Eaton, Illinois state analyst. Charges of bribery preferred against certain state food commissioners by F. N. Barrett of New York are to be investigated by the International Pure Food congress. A committee of investigation was appointed to-day and instructed to go over the ground with Mr. Barrett and conduct a thorough inquiry. Mr. Barrett asserted that he could prove that certain food commissioners accepted emoluments in return for extending immunity from the provisions of the pure-food laws of the different states.

What is considered a concise expression of the purpose of the International Pure Food congress is contained in the following resolution which was adopted:

"Resolved, That the different states and countries of the world be asked to co-operate in bringing about an international unanimity of standards for the purity and equality of food substances."

The recommendation of the congress that in no case shall antiseptics be used and that only in pastry and confectionery shall harmless coloring matter be used was considered a decisive victory for the United States food commission. Another resolution adopted was that an amendment against drug adulteration be added to the Hepburn bill on food adulteration, passed by the House of Representatives last June.

At the concluding session of the congress a permanent committee on international conference was appointed as follows:

Jules Cartier, Belgium, chairman; Dr. H. W. Wiley, United States department of agriculture; Chevalier A. Von Stribal, Austria; Chevalier G. Rossati, Brazil; Dr. John Salvator, Honduras; R. M. Allen, Lexington, Ky.

An invitation was extended by Chairman Cartier to hold the next congress in Belgium, but the selection of the next meeting place was left to the exectuive committee.

Reports of the various committees on matters discussed were considered by the congress. The United States government bottling and bond law was indorsed as a means of identifying the age and quality of whisky. The congress also recommended that all baking powders be labeled and universal standards be adopted.

A resolution to the effect that saccharine might be used if properly labeled was opposed by the state food commissioners and was finally tabled. The executive committee was empowered to eliminate from the records of the proceedings whatever they saw fit. Officers were elected as follows:

President—W. W. C. McConnell, St. Paul.

Vice-Presidents—D. B. Noble of Hartford, Conn.; C. P. Sherwood of De Smet, S. D., and A. H. Leach of Boston.

Secretary-Treasurer—R. M. Allen, Lexington, Ky.

Executive Committee—A. H. Jones, Robinson, Ill.; E. A. McDonald, Seattle, Wash.; Horace Ankeny, Columbus, O.

Some minor business was transacted and the congress adjourned sine die.

CANNED GOODS MARKET

With the exception of tomato canning the vegetable pack is over for 1904. It is possible that a few corn factories, perhaps half a dozen in Minnesota, Wisconsin and Illinois, are still in operation, but if so, it is the clean-up with the chances of the product going out as seconds. It is safe to assume that the majority of corn that went into cans this week was not better than an off standard or second. Otherwise the quality of the stock is unusually good. Tomatoes are still being canned in a scattering way in the various states, with more activity noted in Ohio and Indiana. Slight frost on Monday covered these states, but did no damage. In fact, it was really a help to the slowly ripening fruit, which is fairly heavy on the vines and only needs a few warm days to complete the ripening process. This more hopeful outlook has caused an easier feeling in the market, yet the most rosy report fails to confirm the view that those two states will be able to equal the pack of last year owing to the reduced acreage.

Tomatoes—

The tomato market has become a little easier since our last report. This condition is due to warmer weather in the tomato packing districts and the desire on the part of the packers here and there to part with some of their holdings. Some packers have sold as low as 72½ delivered here, although few packers care to be in the market at that price, the lowest general price being 72½c factory. The jobbing trade is indifferent as a rule and are only buying to meet conditions which vary according to their ideas or needs at the time. A slight frost on Monday improved if anything the conditions of tomatoes in southern Indiana and Ohio. Missouri is having a record pack and the quality a much better average than ever before put up by packers in that state. In the east packing is practically finished, but offerings continue to be freely made at 65 cents, factory.

Corn—

The interest displayed by the eastern packers of corn over the sudden cut-off by frost has been lessened materially by the purchase of corn from western packers, thus relieving the situation by allowing eastern packers to at least partially fill future sales. Naturally the demand was for the highest grades, which were sold all the way from 75 cents to $1.00, factory. There is still a good demand for the quality that will command 90c@$1.00, but there is little or no offering, western packers having either sold all they care to of their best grades at this time or else have sold out and have none to offer. There is little Country Gentleman to be had and what few packers have stock are not on the selling end. The percentage of delivery of eastern corn is the only thing that is worrying buyers nowadays; and no matter what that delivery may be, it will not give a line on the eastern pack, as much western corn will go into the 50 to 80 per cent deliveries of "state" corn. As the western corn is of excellent quality, the east will get a fair supply of good corn which will go into consumption and prove satisfactory

to the consumer. The weather and the pack in New York show the extremes of weather conditions. September 1 the prospects were good all over the state, but the weather was cold and the crop late. With warm weather the state would have had a good pack, but this was denied them and then came the frost. The eastern part of the state around and south of Oneida was affected the more severely by the frost than that section to the north and west and near the lake. In this latter section we understand that there is still a little packing going on. The question of the size of the pack is being discussed with interest, it being generally conceded that the total number of cases packed, while large, is not too large for the country to handle without any slump in prices. What hurts the values, is one large pack following another of equal dimensions. As the present market was absolutely bare of stock previous to the pack, there will be no distress occasioned by the present stocks, even if comparatively large.

Peas—

There is practically no movement in peas. There is no inquiry for cheaper grades and what little business is doing is for extra grades. There are no changes in price to note.

Apples—

The immense crop of apples and lack of foreign demand is making an easier feeling, although there is no change in the situation from that last noted.

Salmon—

The salmon market is quiet here. Advices from California state that dealers report a quiet market. Some sales in carload lots are reported, but business is not as brisk as was expected. Pinks are in good demand, and while dealers list them at 70c and 75c, but few can be obtained at the lower figure. This season's Alaska reds in barrels are selling at $10 per barrel, a shipment having been received from the north.

DRIED FRUIT MARKET

Raisins—

Rains on the coast have no doubt damaged the crop quite seriously, but definite information is still lacking. The market on old goods is up ¼ cent, making the market 4¾c for fancy 16-oz.; choice, 4¼c.

Prunes—

Prunes are as last noted. Arrivals are as yet not coming in freely, but it is too early. California peaches are controlled by packers and in strong hands. The market is a little higher and it is a difficult matter to buy standard grade and only a limited quantity of choice with the market nominal at 7¾@8c. Stocks are not heavy anywhere. Fancy are quoted at 8¾@9c and fancy 9½@9¾c here. Quotations on apples are as follows: Prime, 4¾c; choice, 5¼ c; waste, 1⅛c and chops $1.75. These prices are low.

It is simple: Dissolve one ounce SACCHARINE-MONSANTO in one quart of water—each ounce of this solution has the equivalent sweetening power of one pound of sugar and can be used accordingly. Monsanto Chemical Works, St. Louis. Branches, New York and Chicago.

CANNERS' SUPPLIES

Tin Plate—

Business during the week has shown a little improvement over the conditions existing during the last month or so. Some fairly large orders are said to have been placed for deliveries running to the end of the year, but there is still no active buying movement. The rumor referred to in our last report as to cutting of prices by independent mills still lacks confirmation, and we think should be taken with a grain of salt, as at present cost of material and labor there is not overmuch margin in present selling prices.

Such contracts as have been placed are subject to guarantee against decline, and this feature of the business is causing considerable dissatisfaction to sellers in general. There is some talk of its being discontinued, but when or how this is to be accomplished is hard to tell.

The outlook for business is by no means unfavorable, and we see no reason to anticipate anything but unchanged quotations for some time to come.

Prices are still as follows, f. o. b. mill:

Bessemer Coke Tins.

14x20 (107 lbs.)	3.45
14x20 (100 lbs.)	3.30
14x20 (95 lbs.)	3.25
14x20 (90 lbs.)	3.20

Usual differentials for odd sizes, etc.

Pig Tin—

Buying by consumers is still of a distinctly hand-to-mouth order, though market remains firm owing to continued speculative manipulation abroad. Stocks are somewhat light, so that, in spite of slow demand, sellers are averse to entering orders at anything but full prices, which we quote as follows, f. o. b. New York:

	Spot.	*Oct.*	*Nov.*
5-ton lots	28.30	28.30	28.30
1-ton lots	28.40	28.35	28.35

See Ad. High Pressure Single Capper Bottom page 14

Salmon Shortage.

The total pack of salmon by the various Bering sea canneries during the season just closed is 50 per cent less than that of 1903 according to the estimate of A. F. Brunbrook, superintendent of the Pacific Packing & Navigation company's Nushagak canneries.

This year's pack, Mr. Brunbrook says, did not exceed 750,000 cases. It was made principally by the canneries of the Alaska Packers' association, of San Francisco, and the Pacific Packing & Navigation company of Seattle.

The so-called Bering sea canneries are located at the mouth of or on the Nushagak, Koggoing, Egikag and Unashagak rivers, all tributaries of Bristol bay.

All of the sail and steam vessels engaged in carrying the season's pack left the Nushagak for Puget Sound or San Francisco prior to the departure of the Hume.

The Monsanto Chemical Works, St. Louis, are making a temporary price of $1.00 per pound on Saccharine-Monsanto.

CORRESPONDENCE

HOW THE PACKING SEASON PROGRESSES.

ILLINOIS.

Hoopeston, Ill., Oct. 3, 1904.

EDITOR CANNER:—Our pack will be fully 25 per cent larger this year than last. The yield is above the average and the quality is excellent. We shall finish the pack this week, probably by the 7th inst.

HOOPESTON CANNING CO.

INDIANA.

Covington, Ind., Sept. 29, 1904.

EDITOR CANNER:—Tomatoes to same date last year about two-thirds of pack at present date. Large quantities of green on vines. Cool weather retarding ripening. Favorable conditions and late frost will make good pack.

THE COVINGTON CANNING CO.

—

Greenwood, Ind., Oct. 1, 1904.

EDITOR CANNER:—Biggest rush of the season on tomatoes is on now. A few more than we can take care of in our regular canning department and are running our pulp mill part time. About through on corn, but will have a few more late patches. The tomato and corn packs both promise to be about the same as last year.

J. T. POLK CO.

—

Princeton, Ind., Oct. 1, 1904.

EDITOR CANNER:—Pack of tomatoes is about the same as this time last year. Excessive rains have interfered with pack somewhat. Quality improving now, and expect to pack about two weeks longer. Packed until Oct. 17 last year.

PRINCETON CANNING CO.

—

Scottsburg, Ind., Oct. 3, 1904.

EDITOR CANNER:—Our tomato pack will be about 30 per cent greater than 1903. Acreage 25 per cent greater. Pack will end this week, we think.

SCOTTSBURG CANNING CO.

IOWA.

Lake Mills, Ia., Oct. 1, 1904.

EDITOR CANNER:—We are through packing. Packed about double last season's pack; 1903 was only 40 per cent of normal pack. Will have just about enough to cover our sales.

LAKE MILLS CANNING CO.

MICHIGAN.

Monroe, Mich., Sept. 28, 1904.

EDITOR CANNER:—We have thus far packed 7,000 cases of tomatoes. We think, if weather continues we will pack, all told, from ten to twelve thousand cases, about what we put up last year.

MONROE CANNING & PACKING CO.

Yale, Mich., Sept. 27, 1904.

EDITOR CANNER:—We are not packing any tomatoes this season. We have packed of corn this season, to date, double what we packed last season. We will finish packing corn this week. Had it not been for frost, we would have had a fine season's run on corn this year. Yet we have no reason to complain. Our total for 1904 will be more than double that for 1903.

YALE CANNING CO.

—

South Haven, Mich., Oct. 1, 1904.

EDITOR CANNER:—The coming week will end the peach pack here and we will have packed 15,000 to 18,000 cases principally the 2½-lb. pie peaches. This will be about the same as last year's pack.

SOUTH HAVEN PRESERVING CO.

—

Morenci, Mich., Sept. 26, 1904.

EDITOR CANNER:—Corn packing about over. Will finish this week. Good quality. Pack about the same as last season. Tomatoes are almost a failure. Will probably pack 500 cases against 3,300 last season. We have already had two frosts, but have not injured the vines much.

THE WILLS CANNING CO.

MARYLAND.

Cambridge, Md., Sept. 27, 1904.

EDITOR CANNER:—We packed, last season, 20,000 cases of 3s, tomatoes. This season will pack about 18,000 cases. The season has been a short one. We will wind up the 30th.

T. M. BRAMBLE & CO.

—

Nanticoke, Md., Sept. 26, 1904.

EDITOR CANNER:—My pack of tomatoes will be about one-half as much as last year. Will finish this week. I packed about nine thousand cases in 1903, but will not pack over forty-five hundred this season.

J. W. WILLING.

—

Baltimore, Md., Oct. 1, 1904.

EDITOR CANNER:—Our pack of tomatoes will be about 40 per cent of what we had last year. The season is practically over, as what few tomatoes are coming in now, are only seconds.

THE JOHN BOYLE CO.

—

Pocomoke, Md., Oct. 1, 1904.

EDITOR CANNER:—We finished packing tomatoes to-day. Last year we packed until Oct. 15. Pack this year 60 per cent of last year. We understand this to be the case with all factories in this community.

WORCESTER CANNING CO

—

Federalsburg, Md., Oct. 1, 1904.

EDITOR CANNER:—Our pack of tomatoes is larger than at same date last year. Total, however, will be smaller than 1903 total. Packing about done.

H. B. MESSENGER.

The Albert Landreth Co.

PACKERS OF

LAKESIDE and EUREKA brands of PEAS

Our **LAKESIDE** brand is a fancy hand-picked, and the best **PEA** on the market. Our **EUREKA** brand, while a trifle cheaper, is a fine Extra Standard Pea and never fails to give satisfaction. Both brands are put up exclusively by us, and are strictly guaranteed to be exactly what the label represents.

Factories at MANITOWOC, WISCONSIN

Princess Anne, Md., Sept. 22, 1904.

EDITOR CANNER:—The tomato pack in this section is near its end. There will be no October packing, I think, as tomatoes will not be on the vines. The pack will be very light as compared with last year.

C. M. DASHIELL.

—

Easton, Md., Sept. 22, 1904.

EDITOR CANNER:—We are through with our corn and have about the average pack.

EASTON PACKING CO.

—

Whiteford, Md., Oct. 1, 1904.

EDITOR CANNER: I have not packed any tomatoes this season All the factories around here have either finished, or will make but another part of a day. A short crop I should say.

W. SCOTT WHITEFORD.

—

Sudlersville, Md., Oct. 1, 1904.

EDITOR CANNER: We have closed for the season. Packed 30,000 cases No. 3 tomatoes; packed 20,000 cases No. 2 corn. Packed in 1903, 47,000 cases No. 3 tomatoes, but no corn.

SUDLERSVILLE CANNING CO.

—

Ridgely, Md., Sept. 22, 1904.

EDITOR CANNER:—We operate four factories located at different points on the peninsula. As we now see it, we will pack 50,000 less cases than we did in 1903. In 1903 we packed 125,000 cases and this year we cannot get more than 75,000. We pack nothing but gallons at any of our places. Quite a number of our growers report that they are through picking, and we should judge, from all indications, that picking will be practically over here next week. All of the foregoing seems to be the opinion of our neighbors in business here.

T. L. DAY, SWING & CO.

OHIO.

Conneaut, O., Oct. 3, 1904.

EDITOR CANNER:—Have 500 cases more tomatoes packed than last year at this date. Total not likely to vary much from last year, one of the poorest we ever had. Expect to finish this week.

THE D. CUMMINS CO.

MINNESOTA.

Chatfield, Minn., Oct. 1, 1904.

EDITOR CANNER:—Have finished packing corn for this season. Pack 240,000 cans as against 125,000 cans last year.

CHATFIELD CANNING CO.

—

Plainview, Minn., Oct. 1, 1904.

EDITOR CANNER:—We have finished our corn pack. We packed 7,000 cases.

PLAINVIEW CANNING CO.

—

St. Bonifacius, Minn., Oct. 4, 1904.

EDITOR CANNER: Will finish our corn pack this week; will have about 35,000 cases, as against 13,000 last year. We closed down the first week in October last year.

ST. BONIFACIUS CANNING CO.

NEW YORK.

Pennellville, N. Y., Sept. 27, 1904.

EDITOR CANNER:—Our corn pack this season is a little earlier than last and we expect to continue canning until some time next week. Total pack will be some larger than last season.

PENNELLVILLE CANNING CO.

—

Canastota, N. Y., Oct. 1, 1904.

EDITOR CANNER:—Corn pack 25 per cent greater than last year same date, but 50 per cent short of a full average pack. Close packing to-day.

F. F. HUBBARD.

—

Watervalley, N. Y., Oct. 1, 1904.

EDITOR CANNER:—Corn about same as 1903 same date. Tomatoes about 2,000 cases less than 1903 same date. Corn will probably total with last year, with tomatoes a little short. All depends on weather.

HAMBURG CANNING CO.

—

Knoxboro, N. Y., Oct. 1, 1904.

EDITOR CANNER:—At this date, 1903, we had but began to pack corn. The factory opened Sept. 22, as against Sept. 13 this year. To this date we have packed a little over double our entire pack of 1903. We will pack all of next week if we have no more frost. We now have 50 per cent of normal, and in a week will have 75 per cent. The frost of Sept. 21 and 22, though very severe, did not kill our corn. In this particular, we are better off than most other sections of the state.

KNOXBORO CANNING CO.

—

Le Roy, N. Y., Sept. 22, 1904.

EDITOR CANNER:—Just started last week on corn. It is too early to guess on total pack. We expect more than last year. Without frost will be busy for two weeks more.

LE ROY CANNING CO.

—

Stittville, N. Y., Oct. 3, 1904.

EDITOR CANNER: Finished on corn September 30th. One hundred and forty per cent increase over 1903, but our last year's pack was extremely small. Will deliver 80 per cent on our contracts this year.

STITTVILLE CANNING CO.

—

Rome, N. Y., Oct. 3, 1904.

EDITOR CANNER: About three times as much. About five times as much. We will continue canning unless frost prevents till crop is harvested.

FORT STANWIX CANNING CO.

—

New Hartford, N. Y., Oct. 3, 1904.

EDITOR CANNER: The corn pack is practically closed in New York state. Our corn pack is five times that of 1903, but still but little more than 50 per cent of the normal pack from the acreage planted. However, we will fill all orders in full.

Our tomato pack is extremely small, in fact less than it was in 1903.

NEW HARTFORD CANNING CO.

LITTLE QUAKER
PEAS
AS WE PACK SEVERAL DIFFERENT GRADES, PLEASE REMEMBER THAT THIS IS THE LITTLE QUAKER BRAND AND GUARANTEED STRICTLY PURE AND BEST QUALITY.
W. R. ROACH & CO.

NEW JERSEY.

Salem, N. J., Sept. 22, 1904.

EDITOR CANNER:—We are having 90 per cent of a normal pack of tomatoes. Last year, 45 per cent normal pack.

FOGG & HIRES CO.

—

Fairton, N. J., Oct. 3, 1904.

EDITOR CANNER: We will wind up packing this week, with short pack.

FAIRTON CANNING CO.

VIRGINIA.

Amsterdam, Va., Sept. 22, 1904.

EDITOR CANNER:—My pack is over. I packed last year 25,000 No. 3 cases. This year I will pack about 6,000 cases No. 3 tomatoes from two hundred acres.

G. W. LAYMAN.

—

Daleville, Va., Sept. 22, 1904.

EDITOR CANNER:—Have packed this season 3,000 cases tomatoes as compared with 5,000 at the same date last year. Last year we canned until Oct. 10, whereas this week will about end this year's pack. Some growers have stopped picking already, and those who still have fruit on the vines report weather conditions unfavorable.

E. D. NININGER.

—

Troutville, Va., Sept. 21, 1904.

EDITOR CANNER:—My pack compared with this date last year is about the same. Probable total 2,000 cases against 2,500 last year. I will close up with one more day's run.

JNO. SHAVER.

PENNSYLVANIA.

Ephrata, Pa., Sept. 22, 1904.

EDITOR CANNER:—This is our first year. We have packed 78,000 cans beans, 125,000 cans corn, 50,000 cans tomatoes. Expect 25,000 more corn, and if frost holds off, 100,000 tomatoes.

EPHRATA CANNING & PRESERVING CO.

—

Rothsville, Pa., Sept. 22, 1904

EDITOR CANNER:—We will probably continue packing until the frost ends the work.

IDEAL CANNING CO.

MAINE.

Portland, Me., Oct. 3, 1904.

EDITOR CANNER: We have finished packing corn and are delivering 80 per cent of our orders.

SACO VALLEY CANNING CO.

—

Portland, Me., Sept. 19, 1904.

EDITOR CANNER:—We have packed more corn at present date than packed last year and the quality is very nice. Late corn is maturing rapidly. Expect twice as much as we had last year.

H. F. WEBB CO.

—

Brunswick, Me., Sept. 21, 1904.

EDITOR CANNER:—Practically nothing packed at our factories this time last year. Some of same now about closing, others will run ten days longer. We expect to get 80 per cent of our orders, possibly a little more, but not fill in full.

H. C. BAXTER & BRO.

MISSOURI.

Glasgow, Mo., Sept. 29, 1904.

EDITOR CANNER:—The last week has been warm and tomatoes ripened fast. We will take three days of next week to pack as many as we packed in 1903. If frost stays off, we may pack another thousand cases. Our pack will not go over forty cases per acre, at the best.

GLASGOW CANNING CO.

—

Goldsboro, Mo., Oct. 1, 1904.

EDITOR CANNER:—I have not as many tomatoes as I had last year. Last year I packed until the 20th of October. This year we are through on the first, except a few late patches. Quality this year has been good.

R. JARRELL.

—

Doniphan, Mo., Oct. 3, 1904.

EDITOR CANNER:—We had a big rain the 24th of last month, that ruined our tomatoes. We had to shut down, but the tomatoes are getting good again, and we will try to run this week and perhaps next, if frost doesn't stop us. Can't compare our pack with last year, as this is our first year.

THE DONIPHAN CANNING CO.

THE WEEK IN OTHER MARKETS.

MAINE.

Portland, Me., Oct. 3, 1904.

EDITOR CANNER:—I have but little to change, if anything, in my statements in my previous letter. Packing is over. Some will be able only to deliver forty per cent on their contracts, some fifty, some as high as seventy-five or eighty per cent, but a few only in full. The last are the ones who sold no futures of consequence and hence had a little to sell. I understand that fancy corn has been sold as high as $1.10 since the season was over. It may be sold for more later, for no one knows the end yet.

The price of standard naturally does not rise so much, for a substitute can be found elsewhere.

One thing should be noted carefully this season and that is that Maine corn should come from Maine. If a packer delivers a large per cent, buyers should be able to tell if it comes from elsewhere by comparison of quality, etc. I am informed by certain packers from Baltimore, as well as the west, that the thimble game "is on again."

Now right here I wish to say that buyers should take only for contract delivery goods as per contract, and if they prefer on account of price or from any other cause to purchase in other states, that is their privilege, but no buyer should be imposed upon or impose on others.

Eastern grocers are taking western corn for certain trade that do not care for high grade goods and so far as I know use only the regular labels when the goods were packed.

The apple crop will be good. New gallon are offered at $1.50 f. o. b. Portland.

A few blueberries are offered at $1.15 for No. 2 and $5.00 for gallon.

THE WAUKESHA CANNING CO.

Growers and Packers of

"Menu" Brand
"Old Abe" Brand
"Pewaukee Lake" Brand

Fancy Canned Goods

Peas,
Corn,
String Beans,
Succotash Tomatoes
Pumpkin
Pork and Beans

OUR BRANDS REPRESENT MODERN PRESERVING AT ITS BEST
Being BOTH growers and canners a perfect and uniform pack is at all times assured

WAUKESHA, WISCONSIN

Sparkling Waukesha Mineral Spring Water used exclusively in preserving our goods

Fish are now more plenty and a figure of 62½c f. o. b. Portland can be quoted for No. 1 size "Bluebacks."

INDEX.

MARYLAND.

Baltimore, Oct. 3, 1904.

Dear Sirs:—

As indicated in my last, the warm weather which has been prevailing during the last week or ten days, following the frosts of about two weeks ago, has had the effect of ripening up a good many of the tomatoes on the late patches. The frost wilted the vines and allowed the warm sun to get at the fruit, so that there has been a good many tomatoes packed during the past week. This condition, however, only pertains to that part of the country where the growers put out late plants.

The market on the canned article has not improved, although there seems to be at this writnig an undercurrent of firmer feeling which may develop in an advance in the near future. It is possible to buy No. 3 standard tomatoes at 65c per dozen cash, less 1½ per cent f. o. b. Country, both old and new pack, but there are not so many new packed goods being offered at this figure this week as there was a week or ten days ago. Statisticians are now at work trying to find out what the aggregate pack will be. Much, of course, depends on how soon the frost stops the Western packers. Some people are estimating a pack as high as 8,000,000 cases, whereas others are equally confident that the total pack will not exceed 6,000,000 cases. This, of course, shows quite a difference. There is no doubt but what many of these figurers base their calculations largely on the conditions in their own immediate section. It will, therefore, be some time before any reliable reports can be published, as the men whose figures are most reliable must have time to receive their reports from the various packing centers and get them tabulated. The future of the market naturally depends very much on what the total pack will be and also on other quantity, which is practically unknown, namely, as to what the carry-over of old stock of tomatoes was from 1903. It does seem, however, as though the present low price is not fully justified by the actual conditions of the pack and stocks on hand, and I would not be surprised to see a decided advance as soon as the season is actually over. The demand for tomatoes has been fairly good during the past week, but hardly up to the volume of business that should be expected at this time of the year.

In consequence of the reports that have been given out as to the damage done to the corn crop in Maine and New York states, there has been some little excitement in the corn market in this section, especially on Maine style. During the past two or three years many of the corn packers in Maryland and Pennsylvania have paid more attention to the putting up of Maine style corn, and there is nothing like the difference of quality existing between the Southern Maine style corn of this season's pack and the average Maine style packed in New York state or actually in Maine.

The ordinary Harford county style corn and Standard Shoepeg are obtainable at slightly lower figures this week than a week ago. The market is as follows:

Fair quality Standard Shoepeg corn, 65c, less 1½ per cent f. o. b. county.

Fancy Standard Shoepeg corn, 75c, less 1½ per cent f. o. b. county.

Standard Maine style, 72½c, less 1½ per cent f. o. b. county.

Fancy Maine style, 80c, less 1½ per cent f. o. b. county.

Fair Standard Harford county style, 55c, less 1½ per cent f. o. b. county.

Full Standard Harford county style, 60c, less 1½ per cent f. o. b. county.

If the present demand for corn keeps up higher prices are almost certain in the near future, especially for Maine style.

A few pie peaches have been packed during the week, but it is expected that there will not be many more come into this market. Prices of canned peaches are about the same as last week with the exception probably of pies, which are a little easier. The market is as follows:

No. 2 second white, 80c per dozen; No. 2 second yellows, 85c per dozen; No. 3 second whites, $1.05 per dozen; No. 3 second yellows, $1.10 per dozen; No. 3 standard unpeeled pies, 80c per dozen; gallon standard unpeeled pies, $2.70 per dozen; No. 2 standard whites, 95c per dozen; No. 2 standard yellows $1 per dozen; No. 3 standard whites, $1.30 per dozen; No. 3 standard yellows, $1.35 per dozen; No. 3 extra standard yellows, $1.50 per dozen.

There is very little likelihood of any lower prices being named on peaches between now and next season.

Our packers are now all very busy on pears and were it not for the fact that the market was entirely bare when the season opened there would undoubtedly be a glut in cans. In consequence, however, of the stock of old pears being absolutely cleaned up and the pack of peaches not being as large as was expected, the demand for pears is good and there is very little probability of any break in prices. No. 3 in water are obtainable at 70c per dozen; in light syrup at 80c per dozen, and in good syrup at 90c per dozen, cash, less 1½ per cent f. o. b. Baltimore.

String beans are firmer, the price of No. 2 standards being 47½c per dozen. This firmer feeling has come about because of the recent frost which curtailed the fall packing. Higher prices are likely later on, as the stock on hand is by no means large.

A great many sweet potatoes are being put up both on the peninsula and in Baltimore. The market, however, is very firm on the basis of 75½c, f. o. b. peninsula, and 75c, f. o. b. Baltimore. These figures are for goods put out under ordinary strip labels; wrapper labelled goods are obtainable at 2½c per dozen higher. As there has not been a season during the past four or five years when the pack of this line has been greater than the demand, it is not likely that prices will be much, if any, lower. The packers realize that it is only a question of waiting until after the first of the year, when they can get full prices.

The demand for other lines of goods during the week just past has not been as large as it usually is at the end of September. It is true a great many goods have been shipped out of here, but the volume of business has hardly been up to the average. The prices on the staple lines are as follows:

No. 2 standard strawberries, in water, 55c; No. 2 standard strawberries, in syrup, 70c; No. 2 preserved strawberries, 95c; No. 2 extra preserved strawberries, $1.15; No. 2 standard raspberries, 80c; No. 2 extra preserved raspberries, $1.30; No. 2 standard blackberries, 90c; No. 3 standard blackberries, $1.10; No. 2 standard gooseberries, 90c; No. 2 standard blueberries, 65c; No. 2 second peas, 55c; No. 2 standard June peas, 65c to 70c; No. 2 standard marrows, 65c; No. 2 standard lima beans at 85c; No. 2 standard Okra and tomatoes, 62½c; No. 3 standard Okra and tomatoes, 82½c; No. 2

standard plain Okra, 65c; No. 3 standard plain Okra, 85c; No. 3 sauerkraut, 65c; No. 3 standard baked beans, plain, 50c; No. 3 standard baked beans, sauce, 52½c; No. 3 extra standard baked beans, plain, 62½c; No. 3 extra standard baked beans, sauce, 65c.

There is considerable demand here for pea beans for the packing of baked beans and the outcome of the harvesting of the western crop is anxiously awaited.

Yours very truly,

TARTER.

—

Best Tomato Packers.

Bel Air, Md.

EDITOR CANNER:—I desire to call your attention to a matter of news, which I think may be of interest to your readers. You may possibly be aware of the fact that for more than 30 years, there has been conducted in Harford county an annual country fair, at which there is an exhibition for prizes, for all sorts of farm stock and machinery, as well as farm, garden and household products. This year the management offered a special prize for the best case of tomatoes, as per enclosed clipping from their published catalogue. There were 64 entries and the following exhibitors:

No. 1, J. Thomas Webster, Calvary, Md.; No. 2, Nelson Bell, Brawshaw, Md.; No. 3, J. Barnes Bailey, Forest Hill, Md.; No. 4, E. M. Allen, Jr., Darlington, Md.; No. 5, Thos. E. Kirby, Cole, Md.; No. 6, Jno. W. Cole, Fulford, Md.; No. 7, C. A. Pyle, Forest Hill, Md.; No. 8, W. L. Derickson, Fulford, Md.; No. 9, Archer W. Bowen, Aberdeen, Md.; No. 10, James M. Delevett, Forest Hill, Md.; No. 11, Wright & Delevett, Bel Air, Md.; No. 12, Jos. E. Spencer, Lapidum, Md.; No. 13, Jno. H. Stewart, Rocks, Md.; No. 14, Geo. H. Johnson, Forest Hill, Md.; No. 15, C. C. Spencer, Emmorton, Md.; No. 16, Jno. W. Famous, Street, Md.; No. 17, Richard E. Webster, Creswell, Md.; No. 18, J. T. Norris, Van Bibber, Md.; No. 19, W. S. Gosweiler & Co., Aberdeen, Md.; No. 20, E. M. Kahoe, Forest Hill, Md.; No. 21, Samuel Gross, Rocks, Md.; No. 22, Edward H. Hall, Abingdon, Md.; No. 23, J. Thos. Webster, Calvary, Md.; No. 24, James Dalton & Son, Harford Furnace, Md.; No. 25, B. G. Rees, Sharon, Md.; No. 26, E. W. Bonnett, Aberdeen, Md.; No. 27, Wells & Bonnett, Aberdeen, Md.; No. 28, Wilbur McCann, Dublin, Md.; No. 29, W. L. Clark, Vale, Md.; No. 30, S. G. Hopkins, Garland, Md.; No. 31, Geo. D. Gorrell, Calvary, Md.; No. 32, Thos. J. Oliver, Harford Furnace, Md.; No. 33, Bell & Baxter, Lorely, Md.; No. 34, Geo. E. Wright, Stepney, Md.; No. 35, C. W. Jeffery, Fulford, Md.; No. 36, Jno. H. Smith, Aberdeen, Md.; No. 37, J. S. Whiteford, Whiteford, Md.; No. 38, C. Reed Jourdan, Darlington, Md.; No. 39, Jno. T. James, Poole, Md.; No. 40, C. A. Andrew, Berkley, Md.; No. 41, Adam Bechtold, Calvary, Md.; No. 42, Wm. A. Bodt, Churchville, Md.; No. 43, C. W. Jeffery, Fulford, Md.; No. 44, Daniel J. Lynch, Harford Furnace, Md.; No. 45, Daniel J. Tayson, Wilna, Md.; No. 46, Silver & Cooley, Havre De Grace, Md.; No. 47, W. W. Bradford, Bel Air, Md.; No. 48, Daniel J. Tayson, Wilna, Md.; No. 49, Chas. Hess & Son, Rutledge, Md.; No. 50 L. J. Gross, Jarrettsville, Md.; No. 51, Geo. O. Foard, Rocks, Md.; No. 52, J. W. Spencer, Emmorton, Md.; No. 53, Thomas Gross, Jarrettsville, Md.; No. 54, F. H. Elsner, Aberdeen, Md.; No. 55, F. W. Kimble, Creswell, Md.; No. 56, Bel Air Packing Co., Bel Air, Md.; No. 57, J. Finney Wells, Bel Air, Md.; No. 58, F. W. Smith, Creswell, Md.; No. 59, Dan Fitzpatrick, Abingdon, Md.; No. 60, Samuel J. Ady, Sharon, Md.; No. 61, James T. Smith, Bel Air, Md.; No. 62, Geo. W. Pyle, Forest Hill, Md.; No. 63, A. Cooley & Co., Marion, Md.; No. 64, C. H. Magness, Calvary, Md.

The superintendent of the department succeeded in securing the services of Mr. Walter B. Timms as judge, and was also able to obtain Mr. A. L. North of Johnson, North & Co., and Mr. Thos. J. Meehan of Baltimore, president of the National Brokers' Association, as can-openers. The first prize was awarded to Mr. C. Reed Jourdan; the second prize was awarded to Mr. Adam Bechtold, and the third prize was awarded to Mr. Daniel Lynch. The premium cases were sold at $5.25 a case and the other cases at $2.10 per case. I am enclosing herein copy of Mr. Timms' report to the superintendent, and if you think the item is of interest you can publish such features of it as you may desire.

X. Y. Z.

—

New York, Sept. 21, 1904.

Mr. Jas. C. Young, Bel Air, Md.

Dear Sir:—Referring to my examination of canned tomatoes submitted for exhibition at the Harford Agricultural Society Fair on Sept. 20, I would report the following lots entitled to prizes under the terms of the competition: First prize, lot No. 38; second prize, lot No. 41; third prize, lot No. 44.

I desire to say that the average quality of all the samples submitted was very superior and that, as I stated to you, there is no county in any state in the United States, except Harford county, Md., capable of producing, in my judgment, so large a representation of high class canned tomatoes. There were forty-nine different packs submitted and at least forty of these were strictly high class extra quality tomatoes. I trust that this competition will lead to an improvement in the general average of canned goods packed in your state, and I believe that if that is the case, packers will be materially benefited financially.

I congratulate the winners of the prizes and can only say for the benefit of those who did not receive premiums that it was with material difficulty, and after the most thorough examination that I selected those which in my judgement were entitled to prizes, on account of the high average quality of the entire lot.

Respectfully yours,

W. B. TIMMS.

CALIFORNIA.

San Francisco, Cal., Sept. 30, 1904.

EDITOR CANNER:—The oldest settlers have been extremely busy during the past week explaining that this is the first time in sixty years that we have had more than one-quarter of an inch of rain during the month of September. The inhabitants were completely bewildered to see a downpour which varied from four inches in some sections to eight inches in others, and all within four or five days. This week the sun again shines brightly and the temperature is up to summer heat, with probabilities of a month or six weeks pleasant weather.

Notwithstanding the unusual storm very little actual damage has resulted. Tree fruits were all in except a few late peaches and apples which were uninjured. Table grapes anywhere near ripeness were rendered unfit for shipping purposes. Wine grapes on the ground or unsheltered were ruined. Ripe tomatoes were cracked and rendered worthless. The bean crop of the state is probably very badly affected, though how seriously cannot now be estimated. The benefit to the trees is incalculable. The moisture has penetrated the ground to from two to four feet in depth. The buds of next season's crop are swelling finely and the trees are given new vigor. With the ordinary amount of rainfall this winter the crop of all varieties should be abundant and of most excellent quality.

Fruit canneries are now all shut down with the exception of a few who are operating on tomatoes. There is nothing in the line of peaches, either frees or clings, being offered at the present time. Pears also are more closely cleaned up than anticipated, particularly the lower grades, which are extremely short. It is the closest clean up that we have ever experienced, without exception. There are a few cherries and plums in stock, but even the quantity of this fruit is immaterial. Apricot stocks are also extremely low. Tomato packing is not being pressed with any vigor. Only a few canners are operating and the disastrous results of last season have been a lesson on the evil results of overpacking, so there will probably not be any more of this variety packed than sufficient to carry the trade into next season.

The prune situation is brightening a little, large sizes are short and commanding a premium of half to one cent per pound; values are hardening. There is no question but that there are less prunes in the state than originally estimated. With a heavy crop in every producing district in the world there is little opportunity for any decided advance in price, but it would not be surprising to see the basis rise to 1¼ or even 2c for Santa Claras, and corresponding values for outside prunes.

Peaches and pears are nearly out of stock in all districts. What few there are are commanding exceptional prices. Apricots are scarce and prices firm, and advancing with but little of this variety on hand.

The raisin situation is unchanged. The rain will undoubtedly affect the quantity produced. CAL.

NEW YORK.

New York, Oct. 3, 1904.

EDITOR CANNER:—Interest has been limited almost entirely to corn owing to the sudden freeze which has stopped all operations in New York and New England. So far as this state is concerned it is impossible to obtain an accurate estimate of the damage. One packer wrote that the foliage in his vicinity was badly injured, but that the corn in the ear was not hurt. Others say that the entire crop is ruined. The first canner said that he should gather and pack his corn. Another, writing very near where the first one was located, said that he should be unable to pack more than a small proportion of his contracts. As near as can be judged at present it appears that New York canners will deliver from 30 to 50 per cent. Maine was more seriously affected and few canners will deliver more than 30 per cent and at best only 50 per cent will be delivered.

In the middle west it is understood that the frost did no damage and canners report that they will be able to fill their orders. Letters from that section say that orders are coming from all directions and among the rest are requests from New York packers for samples and lowest prices. Frost also visited Delaware and Maryland, but apparently did not do the damage that it did farther north. Under the circumstances there are no Maine or New York goods offered. The latter would command 80c to $1.00 if procurable. For western stock 80c is the inside quotation. Maine style southern is offered at 70 to 75c f. o. b. factory and standard Harford county at 60c. Southern corn is reported exceptionally good this season, but there appears to be considerable poor stock in the west which has already resulted in rejections. Spot prices are: New York standard 2s, 80 to 85c; Maryland dry packed, $1.12½ to $1.15; western, 77½ to 80c.

The frost doesn't appear to have injured tomatoes so seriously and the upward trend of prices which began last week, immediately after the frost, has entirely disappeared. Sales of reported standards at 65c f. o. b. Baltimore or in the country are reported, and while some are quoting 67½c and others 70c, brokers here say that they can buy all they want at 60c. There isn't much movement here and jobbers are not taking any considerable supplies, but according to reports from Baltimore the west is buying rather freely. Spot prices are: Maryland 2s, 55 to 57½c; Maryland 3s, 70 to 75c; New Jersey 3s, 95c to $1.00; New Jersey gallons, $2.00 to $2.25; Maryland gallons, $1.90 to $2.10.

Peas continue dull, with possibility of buying below quotations if any considerable quantity is taken. Sales are made at supposed concessions, if made at all. Scarcely any inquiry is noted and sales are apparently for immediate consumption or to fill broken stocks. Spot prices are unchanged from last week, so far as quotations go.

Not much interest is shown in beans. Only occasional buyers are seen in market and as rule they take only small quantities. Sales are chiefly for the necessities of the day, rather than for any considerable storage for future distribution. Spot prices rule unchanged from last week, though possibly a shade weaker.

There is an increased demand for sauerkraut. Sales have been rather active of late and buyers are making inquiries which have had a tendency to send quotations upward. Spot prices are: Standards 3, 65 to 70c, f. o. b. Baltimore.

Alaska red salmon is reported fairly active for the season. Buying is on the hand-to-mouth order, however, with no purchaser taking more than he deems absolutely essential for carrying his trade forward. Spot prices range from $1.15 to $1.23½ as to brand, but very little is obtainable at the inside price. The great bulk of the holdings here are stiff at the outside quotation. Pinks are reported selling freely, principally to the south and there are intimations in some quarters that negotiations are pending, which, if consummated, will dispose of the entire supply now in hand. There is no change in prices as reported last week.

Sardines are easier and lower with quarter-oils quoted at $2.80 and three-quarter mustards at $2.10 f. o. b. Eastport. Baltimore is in this market offering quarter-oils at $2.95 f. o. b. HARLEM.

The use of SACCHARINE-Monsanto would not be prevented should either the McCumber or Hepburn pure food bills, now before Congress, become law. Monsanto Chemical Works, St. Louis. Branches, New York and Chicago.

FIRST AMERICAN - KING - FAME - TIP-TOP - FAVORITE
INDIANA - BEN HUR - PEARL - RUBY - GARNET - IDEAL

GRAFTON JOHNSON

Canneries
TIPTON,
KOKOMO,
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NOBLESVILLE,
SHELBYVILLE,
INDIANA

Main Office:
Greenwood, Ind.

PACKER

SUGAR CORN, PEAS,
TOMATOES, PUMPKIN

QUALITY FIRST
"EVERY TIME"

NEW YORK DRIED FRUIT MARKET.

New York, Oct. 3, 1904.

EDITOR CANNER:—Some increase in interest was reported in prunes, attributed in some quarters to the prospect of a decrease in the output because of the damage to drying fruit from rains. Demand is mainly for the larger sizes, but at prices recently acceptable to sellers were refused and in some instances as much as ⅜c advance was asked. In one case 2⅛c basis as declined for a car of half 40s and half 50s October shipment. San Jose operators are reported bidding 2¼c for 40s in Sonoma. For intermediate sizes 1½c f. o. b. basis is said to be the best that can be done. Little interest is manifested in the spot market and prices are exactly where they were last week.

Increased inquiry for apricots is reported and sales of several cars of fancy Royals for shipment from the coast are reported at 9¼ to 9½c f. o. b. in bags. Spot prices remain unchanged, and movement is slow.

Peaches do not appear to be wanted. Prices remain unchanged and buyers are indifferent.

There has been only limited business in California raisins, principally in seeded, is being done. The market fails to respond to reports of damage to the currant crop. Malaga raisins are reported higher abroad, cables reporting an average advance of 10 per cent. The crop there, as in California, has been hurt by rain. Spot prices are moderately firm, but are not quotably different from last reports.

Cables say that currants are unchanged, and the spot market is steady under a fair demand from distributive quarters. Cleaned goods are wanted principally. Spot quotations are the same as last week.

The fig market has been somewhat disrupted by the fact that some importers have already begun offering their goods at auction. The majority of the trade opposes this method severely, at least this early in the season, and it is said that it will cause a low average of prices as long as this crop lasts. Smyrna layers are quoted at 4¾ to 6c, and no other varieties are obtainable. HELLGATE.

SACCHARINE-Monsanto can be used wholly or partly to replace sugar. Monsanto Chemical Works St. Louis. Branches, New York and Chicago.

JOBBING NOTES

The Oliver-Finnie Grocery Company of Memphis will get $263,000 from the insurance companies for its losses in the recent fire.

* * *

Announcement is made that D. E. Almack & Sons will open a wholesale grocery at Coshocton, O., about Oct. 15. They recently sold a similar institution to the Eldridge-Higgins Co. of Columbus.

* * *

The Utah Jobbers' Association is having internal troubles. It was stated that the association was in the throes of dissolution. The trouble, it seems, arises from the effort of the association to keep up prices on certain standard commodities.

The Southwestern Kansas Wholesale Grocers' Association was recently in executive session at the Hotel Baltimore, Kansas City. At the close of the meeting it was announced that the association had nothing to make public regarding its transactions.

* * *

The Behr-Cole Grocery Company has been incorporated at Nashville, Tenn. They will carry on a wholesale grocery and cotton business and its capital stock is named at $75,000, which is divided into shares of $100 each. The incorporators of this firm are Samuel Behr, J. K. Cole, H. T. Bruce, G. Camden Slone and R. E. McIntyre.

* * *

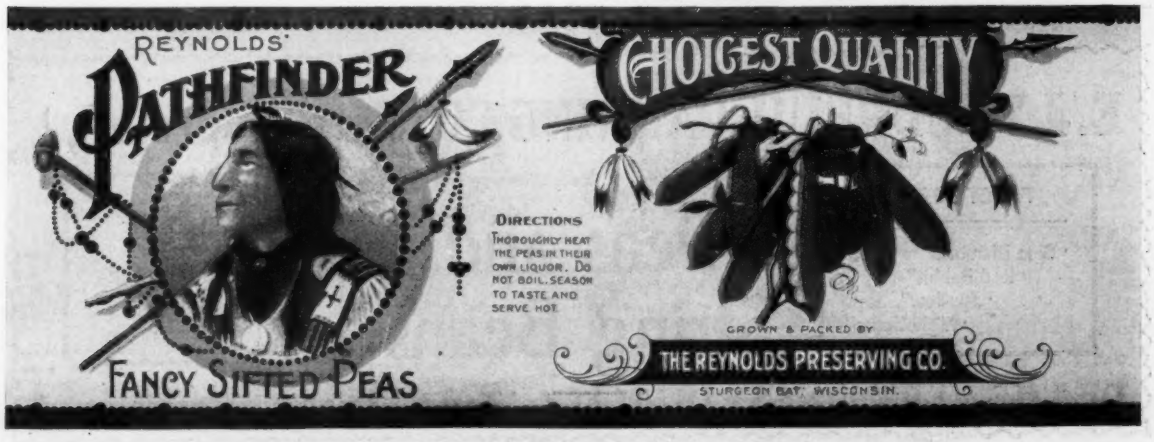
The assets of the United Salt Company were sold October 1 by order of the court to O. C. Barber of Akron, Ohio, for $105,000. The United Salt Company was one of the largest concerns of the kind in the country. As a result of long and costly litigation with the so-called salt trust, however, it became financially involved and a receiver has been in charge of the property for the last two years.

* * *

Permanent and perpetual injunction was granted in favor of Joseph and Samuel Fels against Frank S. Bell and others, and against the Thompson & Chute Soap Company in the United States court at Toledo. The injunction suits filed by Joseph and Samuel Fels against Frank S. Bell, Augustus J. Bell, Susan Bell and Emma Bordal were made permanent and perpetual and the defendants were enjoined from selling and offering for sale cakes or bars of soap not made by or for the plaintiff upon which shall be stamped "Bell's Naptha Soap," "Naptha" or "Naphtha." An injunction prayed for against the Thompson & Chute Soap Company for the use of wrappers similar in figure and design to those used by the Fels was also made permanent and perpetual.

* * *

The National Grocer Company of New Jersey, organized in July, 1902, was Sept. 29 disbanded, and the National Grocer Company of Michigan was organized to succeed the old association, as well as the Grand Rapids Grocer Company, which was organized as a temporary measure, with a nominal capitalization, Sept. 20 last. The capitalization of the new company has been placed at $2,000,000 common and $1,500,000 preferred stock, bearing 6 per cent interest, all paid in and held by the owners of the grocer establishments which are embraced in the organization. There are twelve houses in the company, which are known as branches, and for the most part these are located in Michigan. They are the Musselman Grocer Company of Grand Rapids, Traverse City and Sault Ste. Marie; Phipps, Pennoyer & Co. of Saginaw; Gustin, Cook & Buckley of Bay City; C. Elliott & Co. of Detroit; Jackson Grocer Company of Jackson; Austin-Burrington Grocer Company of Lansing; F. Saunders & Co. of Port Huron; Phipps-Hall Grocer Company of Durand; Riddell-McClellan Grocer Company of Decatur, Ill., and the National Grocer Company of South Bend, Ind. Officers were elected as follows: Amos S. Musselman, Grand Rapids, president; F. C. Letts of Chicago, W. C. Phipps of Saginaw and Clifford Elliott of Detroit, vice presidents; H. S. Griggs, Chicago, secretary-treasurer. The directors are: A. S. Musselman, M. D. Elgin, F. C. Letts, H. S. Griggs, W. C. Phipps, Frank J. Buckley, Bay City; Clifford Elliott, David Riddell, De-


REYNOLDS'
PATHFINDER
FANCY SIFTED PEAS
DIRECTIONS
THOROUGHLY HEAT THE PEAS IN THEIR OWN LIQUOR. DO NOT BOIL. SEASON TO TASTE AND SERVE HOT.
CHOICEST QUALITY
GROWN & PACKED BY
THE REYNOLDS PRESERVING CO.
STURGEON BAY, WISCONSIN.

catur, Ill., and H. N. Higginsbotham, Chicago. H. N. Higginbotham retired at his own request as president. Mr. Higginbotham retains his interest in the organization, being a director and a member of the executive committee. The company was originally organized under the New Jersey laws as there was no law in Michigan under which it could hold meetings outside of the state. This law has been amended and the principal office of the company will be in Chicago while the Michigan office will be in Grand Rapids.

SACCHARINE-Monsanto is healthful, economical, uniform. Monsanto Chemical Works, St. Louis. Branches, New York and Chicago.

PICKLE NOTES

The Bellevue, Ohio, new industry, the kraut factory, is using about sixty tons of cabbage a day.

* * *

The Seneca kraut atnd pickling factory in South Waterloo, N. Y., has been greatly enlarged, having doubled the capacity of former years.

* * *

Farmers who have been in the pickle business near Sparta, Wis., have done well this season. Some of them have picked as much as 150 bushels from one acre.

* * *

The Keokuk Canning Company, which recently established a factory at Lansing, Mich., has finished the season's run on cucumbers. The factory has several pickling and salting stations in central Michigan, and many thousand bushels have been put up. It is said that this year witnessed only about one-fourth or one-fifth of the normal crop in the state.

* * *

For the past week there have been received at the Fulton, Ill., plant of the Amazon Vinegar and Pickling Works of Davenport an average of six hundred bushels of cucumbers a day. Over nine thousand bushels of cucumbers have been salted at this plant this season. Nineteen large vats have been filled and the company is now building six more.

SACCHARINE-Monsanto will not deteriorate in hot climates. Monsanto Chemical Works, St. Louis. Branches, New York and Chicago.

New Solder Factory for Maine.

The new solder factory being erected at Portland, Me., by the E. M. Lang company of that city is nearly completed. When finished the plant will be as complete as any in the United States for the manufacture of canners' solder.

SACCHARINE-Monsanto produces better flavored drinks and clearer syrups than sugar. Monsanto Chemical Works, St. Louis. Branches, New York and Chicage.

New Patents.

The following are the patents of interest to the canning trade issued for the week ending Sept. 27:

770,751. Closure for bottles, jars or other receptacles.—Dorothea C. Hull, Brooklyn, N. Y. Filed Nov. 25, 1903. Serial No. 182,570. (No model.)

770,948. Method of making sheet-metal boxes or cans.—Benjamin Adriance and Amos Calleson, New York, N. Y.; said Calleson assignor to said Adriance. Filed Oct. 24, 1903. Serial No. 178,381. (No model.)

770,957. Feeder for fruit-pitting machines.—John S. Briggs, Los Angeles, Cal. Filed Aug. 10, 1903. Serial No. 168,884. (No model.)

770,971. Jar—John W. Kunkel, Lazearville, and Clarence Robinson, Wellsburg, W. Va. Filed May 21, 1903. Serial No. 158,173. (No model.)

771,017. Cap for bottles or other vessels—John A. Jones, New York, N. Y. Filed Dec. 17, 1903. Serial No. 185,562. (No model.)

771,121. Jar closure—William E. Brown, Los Angeles, Cal. Filed Nov. 24, 1903. Serial No. 182,506. (No model.)

The following are the patents of interest to the canning trade issued for the week ended Sept. 21:

770,281. Stoppering device—Willard R. Green, Denver, Colo. Filed Feb. 26, 1903. Serial No. 145,253. (No model.)

770,387. Fruit jar—William Richards, Rochester, N. Y. Filed June 2, 1904. Serial No. 210,894. (No model.)

770,654. Bottle stopper—Jessa Reddick, Bloomington, Ill. Filed Jan. 6, 1904. Serial No. 187,935. (No model.)

770,658. Process of preserving fruit juices—David Sandmann, Berlin, and George Eichelbaum, Charlottenburg, Germany. Filed Oct. 28, 1902. Serial No. 129,171. (No specimens.)

TRADE-MARKS.

43,395. Dried and preserved fruit—Christian Eckardt, Hamburg, Germany. Filed July 14, 1904. The word "Cetes." Used since June 1, 1902.

43,396. Canned fruits and vegetables—West Coast Grocery company, Tacoma, Wash. Filed Aug. 20, 1903. The word "Amocat." Used since July 1, 1902.

The telephone and the electric light were opposed when first introduced; so was SACCHARINE. Time develops and progress forces them into use, then their advantages are fully appreciated. Monsanto Chemical Works, St. Louis. Branches, New York and Chicago.

E. J. VAUDREUIL CANNING CO., Two Rivers, Wis.

PACKERS OF

Peas and String Beans

FANCY BRANDS
"Blue Diamond"
"Red Rabbit"
"Swallow"
"Light House"

FRENCH PEAS, 1-lb. cans,
"Encore Brand."
STANDARD BRANDS
"Northern Wisconsin"
"Hobby"

OF THE VERY FINEST QUALITY. Try them and be convinced

Sprague Canners' Laboratory.

By Edward W. Duckwall, M. S., Bacteriologist.

This has been a very busy month in the laboratory. We have had quite a number of cases for both bacteriological and chemical analysis. We have also examined several express shipments of goods sent into the laboratory to determine if the processes were sufficient to accomplish sterilization. This feature of our work is most valuable to canners from the fact that any process which is below the point actually required for complete sterilization may be determined within a very short time, and a report made to the canners before a serious loss occurs. When we receive cans of this kind for examination we place them in the incubator and maintain them at a temperature of blood heat, 98 degrees F., for two or three days. We then take them out, open them and examine the juice under the miscroscope. If sterilization should be incomplete we would be able to find living bacteria, and could report same promptly by wire.

We wish to call the attention of the canners who send samples of goods into the laboratory to the absolute necessity of detailing the manner of handling and processing the goods. Also state if any chemicals of any kind were used, so that we may be able to work intelligently and give the best possible satisfaction. When the parties desire us to eliminate parts of letters we will do so, if, in our opinion, the points have no connection with the spoilage. We never under any circumstances publish the names of the firms that send us samples, and we use judgment always in publishing the letters. We have three cases on hand now which we cannot explain simply because we are not in full possession of all the facts, and the reports on these spoilage cases must be carried over until we get every detail in connection with the process of manufacture.

Clouded Liquor in Canned Peas.

The following letter was received:

Sept. 2, 1904.

Sprague Canner's Laboratory, Aspinwall, Pa.

Gentlemen:—We are sending you by express to-day, six cans of peas, three each of two varieties of seed. We would like to know what causes the liquor to have the appearance that it does. It is not what you would call a cloudy liquor, but shows small particles floating in it.

These peas were shelled by a viner. After being graded, they are placed in a can perforated with ¼-inch holes, and pass from the bath of cold water into boiling water, the can being submerged two or three inches below the surface, allowing the dirt to boil up, and out over the top of the tank. From there they go to the picking tables, where they are carefully picked over, then through a washer, which is built similar to the Plummer Blancher, being carried through the water by means of a spiral conveyor. From the washer they go into the filler, are capped, and cooked about 30 minutes at 250 degrees, then pass through a cooling tank.

In regard to our water, would say that we are in a limestone section, and our water is very hard.

We do not think that the peas are more than 20 minutes to one hour in going from the viner to the capper.

We find the worst trouble in our larger sizes.

Our superintendent has been in the business for about thirty years, and has been located in several different sections of the country, and has never had this experience before. We would like very much to know the cause of the trouble, and a remedy for it, if possible.

We examined these six cans of peas and found that the liquor had become quite clouded and the peas were burst open, which allowed the contents to permeate and cloud the liquor. We recommended that these parties should use an alum bath to toughen the skins of the peas, so that they would not burst during the sterilization. When alum is used it should be followed by a bath of cold water. The process might perhaps have been a little too long for these peas, and we suggested that the time be cut down five minutes, or sufficient to avoid bursting the peas. It is not necessary to prolong a sterilizing process until the peas burst; sterilization can be accomplished in less time. Of course there are several things which might cause the peas to burst open besides a prolonged process, as we explained in our last month's report, viz., where the peas are allowed to stand long enough for certain bacteria to soften the fibre. This was evidently not a factor in this case, because the letter states that the peas are worked up rapidly. It is not possible to give an absolute rule for sterilizing peas; that process is to be regulated according to the size, age and quality of the raw material, so we would suggest a process twenty, twenty-five to thirty minutes at 250 degrees F. It is a wise plan to open cans several times a day and note the appearance of the goods after processing. This applies not only to peas, but to all kinds of canned goods. On the other hand, it is well to place cans in a warm temperature to determine if any spoilage is liable from a process that may seem to be rather short. Cans may be sent into the laboratory and we will determine this point, as we have said, and will report promptly any liability to spoilage.

Canned Shrimp.

We received an express package containing three cans of shrimps, which, upon opening, we found in perfect condition, excepting that the parchment paper was much discolored. Canners of shrimps use parchment all over the interior surface of the tin cans to protect the meat of the shrimps from metallic discoloration. We found that the paper in these cans was very much discolored and wrote to the parties asking them if they had used any chemicals in the preparation. This we always do in such cases, in order to save time in making analyses to determine if chemicals were used.

The following letter explains the point:

Aug. 25, 1904.

Mr. E. W. Duckwall, Aspinwall, Pa.

Dear Sir:—Referring to the shrimp cans we sent you for examination, the parties report they have two processes for canning shrimp, one in which the cans contain a light brine, the other where the shrimp are packed in the cans dry after being boiled. They use no chemicals whatever. They find in those which are packed in brine, the black will not show; they think because the discoloration is absorbed in the brine; but in those packed dry, the discoloration shows in the paper lining. Nearly every can becomes black on the seam.

As you open the cans we wish you would note whether this last statement of theirs is a fact or not. We opened several, and our recollection is that the majority of them showed discoloration distant from the seam.

With this information before you, we hope you can give us an opinion in regard to the matter.

Yours very truly,

On examining the tin plate we found that the tin coating was gone in hundreds of places and that the steel sheet was nearly perforated in many places, as shown by the plate.

PLATE I.

Photomicrograph of tin obtained from a can which contained shrimps. The large black portion of the cut shows how badly the tin plate has been attacked by the salt and acid. The steel sheet is almost perforated in hundreds of places.

Tin plate for such goods should run not less than 3 lbs. of tin to the box. Mag. 200 diameters.

We were at a loss to know why the tin had been so vigorously attacked, and our only solution is that the plate was not sufficiently coated with tin to withstand the action of the salt with which the shrimps were highly seasoned. We have not yet finished with this case, because we have never seen such complete breaking down of tin plate, where so little acid was present. The amount of acid present in the juice or brine was just barely sufficient to redden blue litmus paper. In connection with this, we have written in another part of this report a criticism on an article which appeared in the Scientific American of July 2, which expatiated upon the value of lining cans with parchment to prevent ptomaine poisoning.

Discoloration of Hominy.

August 26, 1904.

Prof. E. W. Duckwall, Aspinwall, Pa.

Dear Sir:—We have some hominy that is discoloring to a considerable extent where the grains touch the can. Are you able to point out what the trouble is with ordinary coated coke plate cans and where nothing else is put in the hominy in the way of preservatives, or anything else, except some potash to cut off the skin of the corn and a little salt for seasoning the goods when they are finally sealed up? Can you suggest a remedy and do you want some cans for analysis? We shall be pleased to hear from you.

On opening the cans of hominy we found that a dark discoloration had penetrated to the center of many of the kernels, and where the kernels lay against the tin the coating seemed darkened and showed signs of breaking down. We studied the matter carefully and evaporated some of the juice to a dryness and ignited the residue, which gave a red flame, when observed through a blue glass. This showed the presence of potassium. We therefore concluded that the lye or potassium hydroxid had not been completely washed out of the hominy, and enough of it remained to cause the discoloration referred to in the letter. In order to verify our conclusion, we picked a can of hominy where all the kernels were pure white, and added a slight quantity of 1 per cent solution of potassium hydroxid and placed the can in the incubator over night. Next day we examined this can and found the conditions identical with those of the goods under examination. We therefore wrote this party the results of our investigation and recommended a more thorough removal of the lye from the hominy, and a slight addition of vinegar, just sufficient to neutralize any of the alkali which might remain after the washing. In order not to use too much vinegar, we stated that the acidity could be tested with blue litmus paper, and only just sufficient vinegar should be added to turn the litmus paper slightly red. In this case there will not be any taste of the vinegar, and the alkali, having been neutralized, will not attack the metal of the cans.

Swelling of Tomato Cans.

Sept. 2, 1904.

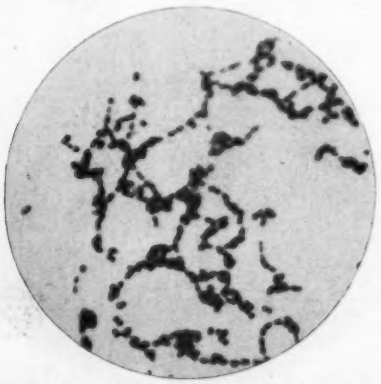
Sprague Canner's Laboratory, Aspinwall, Pa., E. W. Duckwall, Mgr.

Gentlemen:—We are shipping you to-day by express prepaid three sample tins of the patent sanitary can. We send you one can which you will notice has both ends flat and apparently in good condition; one can has one end puffed out or is what we call a springer, No. 3 has both ends puffed out, and is what we call a swell.

Will you kindly make investigation of the three samples sent you and let us have your opinion thereon. These goods we processed at 220 temperature, 40 minutes' time.

Awaiting your prompt reply, we are,

Very truly yours,



Photomicrograph of Bacillus Acidi Aceti or Mycoderma Aceti or "Mother of Vinegar," showing short dumb-bell rods, large lemon shape and drumstick involution forms. Produced acetic acid in tomat es isolated by plate culture method; stained with fuchsine and mounted in xylol balsam. Magnified 1,000 diameters.

The goods referred to in this letter were tomatoes, which were badly swelled. We immediately inoculated test tubes of bouillon and also streaked Petri dishes containing nutrient agar. After twenty-four hours we had a fine growth of bacteria, as shown in the plate. These bacteria belonged to the acetic acid group and generate acetic acid and carbonic acid gas. It was the carbonic acid gas which caused the swelling of the cans. The process used was evidently insufficient to complete sterilization, and we would recommend that the parties increase their process five minutes.

Spoilage of tomatoes is not frequently caused by acetic acid bacteria alone. It usually happens that molds and yeasts play a prominent part in their decomposition. Generally acetic acid bacteria follow molds and yeasts, and convert the alcohol formed by these fungi into acetic acid and carbonic acid gas. In this case we are under the impression that alcoholic fermentation must have been accomplished prior to the sterilization process, probably at some time after the peeling, when the tomatoes were allowed to stand until they had fermented more or less. In this case there would be some alcohol formed during the fermentative process, and this alcohol would, of course, supply the acetic acid bacteria with a substance nutrient for them, and would fulfill all their requirements for multiplication and the formation of acetic acid.

Corn.

Aug. 24, 1904.

Prof. E. W. Duckwall, Aspinwall, Pa.

Dear Sir:—We are expressing to you to-day two cans of corn, packed this morning, and we would like to have you advise us by wire if all right.

We processed this corn as per your suggestion, i. e., 65 minutes, at 250 degrees in the calcium tank. This calcium proposition is a new one with us, and we feel more or less anxiety about the goods until we know that they will keep. Some of the corn in this morning's run was a little green, and does not present the creamy appearance that it does when a little more mature, however some of it is mature enough, and we cannot tell whether the cans which we are expressing to you contain the very young corn or that which is better, as it is mixed up in the shed together, and some batches will be nice and creamy, while others will show a watery consistency with small granulated particles, as is common with corn which is too young to give body to the cream.

The cans submitted to you were processed in crates that were submerged about eight inches in the calcium bath, the temperature being 250 degrees and the time full 65 minutes. The corn contains no bleacher or saccharin, and our brine is made from the best granulated sugar and salt.

We notice that in the cans where the corn was too young, the color is quite dark, and in the other it is as light as we care to have it.

Upon examination of the sample cans please wire us, at our expense, if you find any reason to think that the corn is not sufficiently sterilized, or any other reason why it should not keep, and oblige.

Very respectfully yours,

After keeping them in the incubator for two days we opened these two cans of corn and found that they were very nice indeed. The color was good, and showed no signs of overprocessing. We are quite sure that the color and flavor of such goods must please the trade. There were no bacteria present.

Spoiled Corn.

The following letter explains itself:

Sept. 6, 1904.

Mr. E. W. Duckwall, Aspinwall, Pa.

Dear Sir:—We are expressing you to-day, prepaid, four cans, two bulged, one good, and one empty, for examination. Please advise us wherein the trouble lies. Is it a lack of sterilization, faulty cans or our water supply? We use a standard formula, cooking one hour and twenty minutes at 240 degrees. Our water supply comes from a driven well 178 feet deep. Do you consider the good can safe?

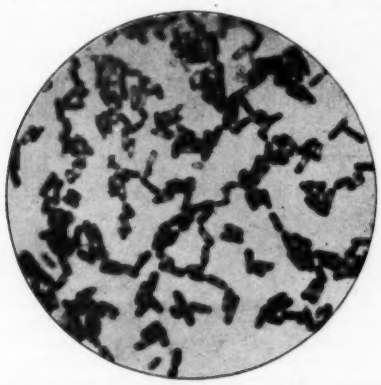
Very truly yours.

The four cans reached the laboratory, but the contents of one had been lost on the way. We punctured the other swells

Photograph of a Corn Bacillus found in a can of sour corn, which had been sterilized at 245° F for 65 minutes. It produces much acid, no gas and curdles the corn milk. It is actively motile, propelling itself by means of numerous flagella growing out from the cell in all directions. This is from a very young growth on corn juice agar, stained by our own method, mounted in Xylol Balsom. Magnified 1,000 diameters

with a sterilized awl, and after the escape of fermenting corn juice and malodorous gases we inoculated several Petri dishes and bouillon tubes with some of the juice taken from the can, under as nearly aseptic conditions as possible. We had a fine

growth of bacteria in all of the tubes and dishes. After diluting the bouillon we streaked several Petri dishes, and obtained colonies sufficiently separated for isolation. One of these organisms was described in the April number, on page 22. The

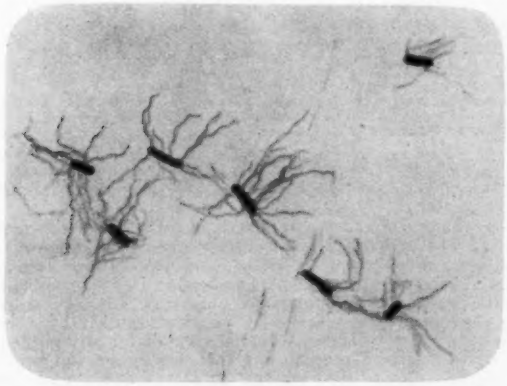


Photograph of the spores of the Corn Bacillus, shown above These spores are centrally located in the rods, and after being set free are able to resist a temperature of 245° F for 65 minutes when growing in cans of corn. Stained with carbol fuchsine, mounted in Xylol Balsom, photographed with acetylene radiant under a 1-12 homogeneous oil immersion lense, giving a magnification of 1,000 diameters.

bouillon culture formed a pellicle on the surface and this became very much wrinkled. The plate culture spread rapidly, a thin, transparent growth of bacteria extending in all directions from the line of inoculation. This organism produced no gas in any of the cultures made, and when transplanted into cans of corn caused them to turn sour, without the formation of gas or swelling of the can. It forms spores, centrally located in the rods, and when these are set free they become extremely resistant to high temperatures and are able to withstand 245 degrees F. for 65 minutes, and in this case withstood a temperature of 240 degrees for 80 minutes. This was the process mentioned by the packer in his letter.

The other bacillus formed gas quite freely, and sulphurettted hydrogen was also formed, and the bouillon culture gave the indol reactions. The foul odor noticed when we opened the can was due to these two products. The bacillus is a spore bearing, actively motile organism and formed a pellicle on the surface of the bouillon, and caused the fermentation of grape sugar bouillon and corn juice. It is endowed with numerous

PLATE II



Photomicrograph of a bacillus isolated from a can of spoiled corn which had been processed for 80 minntes at 240° F.
This organism actively motile, having very numerous flagella stained by our special method.
This specimen was taken from a very young growth of pure culture on Agar. Mag. 1200 diameters.

flagella, which grow out from the entire surface of the cells, and these are the cause of its active motility. The colonies on agar are round and greyish white, at first lustrous, then becoming more wrinkled and folded. The periphery is indented or tufted; the same general characteristics are demonstrated in the streak culture on the surface of nutrient agar in Petri dishes. The spores are located nearer one end of the rod, and when set free are very resistent to high temperatures, as was evident from their having passed through a process of 240 degrees F. for 80 minutes. The cans inoculated with the spores of this organism were perfectly sterilized when given a process of 250 degrees F. for 63 minutes.

In sterilizing corn we believe that 250 degrees F. should be used in preference to the lower temperature. It requires about 50 to 60 minutes for this temperature to reach the center of a No. 2 can, and it requires about 5 minutes' exposure to this temperature to insure devitalization of the spores of such bacteria as are shown in the accompanying plates. It is barely possible that this time could be cut down a few minutes if the cans are agitated during sterilization, but corn is almost impervious to heat, and those kernels which are nearest the tin are sterilized in far less time than those at the center, so that agitation would have a tendency to bring the corn in the center nearer the tin at times. A temperature of 250 degrees does darken the color a trifle, but if the proper cooling process is employed, the color will be very good, and while not as white as corn bleached with sulphites, is good enough for any market. Some of the cans sent to the laboratory for inspection have had very good color after this process. The good can appears to be all right; up to this time it has not swelled in a temperature of 98 degrees F.

The Use of Sulphites for Corn Bleach.

Several canners have sent us cans of corn into the laboratory desiring to know if there were any substances that could be detected which might be considered in violation of pure food laws. In such cases we have written the parties, requesting them to state what chemicals, if any, they had used, and we have advised them in all cases to dispense with the sulphites or corn bleach, and to put up their goods absolutely pure, and let the color be whatever shade is obtained after sterilization, giving due care to the cooling.

The present crusade being made against all forms of adulterations is liable to get packers into legal difficulties, if they use any unnecessary chemicals in their canned goods. We would suggest that the canners be brave enough to comply with pure food laws, and state to the buyers of their goods that the color and flavor are the best that can be produced in packing pure goods.

Black Rot of Tomatoes.

We received by express a tomato, one side of which was completely diseased by what is known as black rot disease, and the following letter will explain:

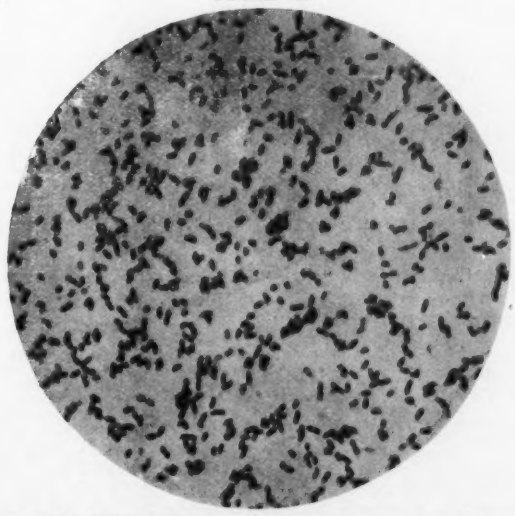
Aug. 12, 1904.

Prof. E. W. Aspinwall, Sprague Laboratory, Aspinwall, Pa.

Dear Sir:—I send you under separate cover sample green tomato. A great many of the tomatoes on our vines present the same appearance as this sample. Is this not caused by the tomato louse? Your opinion will be appreciated. Please address.

Yours truly.

PLATE III



Bacillus of Tomato Black Rot disease. This is not a motile organism, and no spores have been observed. This is a photomicrograph obtained from a fuchsine stained preparation of a pure culture of the bacilli on Agar. Mag. 1200 diameters.

The cause of the black rot is not due to the tomato louse, as the letter suggests, but to a bacterium. We made cultures

of this organism from the tomato, and were successful in getting fine growths on nutrient agar in Petri dishes. In order to be certain that our culture was the right organism, we inoculated several tomatoes with a loop full of the bacteria from the pure culture, and were successful in transplanting the disease. We found, however, that we could not communicate the disease to perfect tomatoes without puncturing the skin. When the bacteria were simply spread over the surface of the skin, they remained dormant or dried up without inducing the disease. We are at a loss, however, to know how to apply a remedy for the black rot in the patch of tomatoes. We have noticed that this disease is more frequent in either extremely dry or in extremely wet weather. In dry weather the tomatoes are frequently stung by insects and the bacteria which are responsible for black rot thus gain an entrance through the perforated skin. Sometimes after a rain the sun will come out very brightly and the skins will crack open under the influence of the heat, thus affording a means of invasion by bacteria.

In extremely wet weather the plants are sometimes knocked down and the tomatoes rest on the wet ground where they are attacked by worms and various insects and bacteria may set up the disease through the perforations thus made in the skin. The black rot disease sometimes works its way entirely through the tomato, destroying it. Frequently only a portion is affected, and this is removed, of course, when the tomatoes are peeled. When tomatoes are intended for catsup, all such diseased places have to be cut with a knife, because black rot disease will permeate the whole batch of pulp, and black specks in the goods will result. While we are not able to suggest any means of destroying the bacteria which are responsible for such widespread destruction of tomatoes as we sometimes see, it is interesting to know just what organisms are responsible, and gives us a means of studying the problem of overcoming these losses. The accompanying plate gives a microscopic view of the black rot bacilli as they appear when magnified 1,200 diameters. The colonies of this germ are of a slightly yellow color, even bordered. The streak culture on agar is somewhat lustrous and yellowish in color, after a time becoming darker, deepening into almost a brown. The organism is not motile, and so far as we were able to study its characteristics, it does not form spores. We intend to study the morphological and biological characteristics of the tomato black rot bacillus, and endeavor to find some means of protecting the maturing tomatoes in the patch when this disease is rampant.

Analysis of Tin Plate.

The following letter was received:

Sprague Canners' Laboratory, Aspinwall, Pa.

Gentlemen:—We are sending you this day by express two tin cans marked No. 1 and No. 2. Kindly let us know the quantity of tin you find in each can. We desire to purchase some cans and wish to know the above before purchasing. Thanking you in advance, we remain,

Yours very truly,

We made analyses of the tinplate in these two cans and found them both very good, the No. 2 being somewhat superior to the No. 1. We analyzed the tinplate by the iodin titration method. The No. 1 equals 0.0033 of a gram of tin to one sq. in. both sides, which is equivalent to 2.07 lbs. of tin to the box of 112 sheets, 14x20. The No. 2 equaled 0.0036 of a gram of tin to one sq. in., both sides, which is equivalent to 2.26 lbs. of tin to the box of 112 sheets, 14x20. The microscopical examination of the plate showed that there were no gross imperfections and the No. 2 particularly, was very fair plate.

Swelled Strawberries—A Wonderful Phenomen Discovered.

August 20, 1904.

Mr. Ed. W. Duckwall, Aspinwall, Pa.

Dear Sir:—We are sending you by express from our factory two cans fancy preserved strawberries. These berries were sealed and processed at a temperature of 175 degrees and consist of about 80 lbs. of sugar to 100 lbs. of fruit. They were cooked 30 minutes in a retort at 212 degrees and then plunged into cold water. If we use any higher degree of heat, it bleaches the berries and the color is destroyed, making them a nasty brown. Not only that, but it reduces the berries to a pulp and we find that even at 212 degrees, the temperature we cooked them at this season, is almost too much, and it leaves the berries too soft to look well when opened. This is the process we have been using on our berries, and every year we have had more or less "swells," which we cannot assign to defective tin can making or capping, and as the food laws prevent the use of color, we are at a loss to know how to make these berries appear a nice red color, which the trade demands.

Can you tell the cause of these heavy preserved berries swelling?

Awaiting your reply with much interest, we are,

Yours truly,

We examined the two cans carefully, and discovered that one was a tip leak, the other a cap leak, and notified the packers of this fact. They sent us some more samples, and no leaks were visible; the cans were swelled but the pressure of gas was not very great.

We opened one after streaking with the juice a number of Petri dishes and inoculating several tubes of bouillon. We examined the juice carefully and were not entirely able to positively identify any micro-organisms. There were some yeasts which resembled the lemon shaped saccharomyces apiculatus, but these were so few in number that we decided that they were probably dead, having been destroyed in the sterilizing process.

There were a number of small rods visible, but these were fewer than we would expect to find in a can containing as much gas as this one enclosed.

We examined our culture media daily, but no growths appeared and none have appeared up to this time, some twenty days having elapsed. Thinking that perhaps the bacteria or yeasts might not thrive on ordinary agar beef juice, and bouillon, we made some media from canned strawberry juice, and inoculated these in the same manner as before. In one tube of strawberry juice we added two or three drops of the supposed infected strawberry syrup. We placed some tubes in the anaerobic jars, and absorbed the oxygen by the pyrogallate method described in the July laboratory report, but in no case were we able to get a growth of any kind. I therefore was much puzzled to understand how so much gas could be present and no micro-organisms. The thought occurred to me that the seed life of the strawberries might be responsible, and so I examined a number of the seeds and sure enough about one-third of them were sprouting. This, then, is the solution of the problem. During the germination of the seeds a quantity of carbonic acid gas is liberated, and this accounts for the swelling of the cans. We noticed all along, that the strawberries were sweet, apparently unfermented, but could not account for the presence of carbonic acid gas, except by some fermentative process.

We are taking photomicrographs of the germinating seeds and we have planted some of the seeds in suitable soil, and hope to get some plants. Next month we will have some more information to give our readers on this very wonderful phenomenon. This will throw some light on the mysterious swells noticed among canned berries of various kinds.

The next step will be to determine some means of preventing the germination of the seeds and we hope to be able to make some valuable suggestions within a short time.

A Letter of Questions.

Aug. 10, 1904.

Sprague Canners' Laboratory, Aspinwall, Pa., Prof. E. W. Duckwall.

Dear Sir: Will you kindly give us the following information: In case we make a solution of 150 lbs. of salt and sugar with 14 gals. of water, will there be more than 14 gals. of syrup? If so, how much will it increase the quantity of water to add the 150 lbs. of salt and sugar? Is there any chance of objection by food experts to corn put up by using to can 4½ oz. of syrup that has 1 lb. of sulphite of soda to 38 gals.?

What is meant by rejected syrup? How do you make 12 degrees syrup? How do you change it to 16 degrees if one should so desire?

Yours truly.

The amount of sugar and salt to be dissolved in fourteen gallons of water is too large; the bulk would be increased to 2 1-10 times.

Sulphite of sodium or corn bleach, is objectionable in canned goods. The addition of such chemicals is in violation of pure food laws in many states. There is no need of any such substances in canned goods. A good color is always obtained if care is observed in preparation and sterilization. The color may not be as white as that of goods which have been bleached, but it will be quite good enough for any market.

Twelve degrees syrup means that the syrup will register 12 degrees on a Brix aerometer. It means 12 per cent sugar, 88 per cent water. In order to increase the per cent of sugar to 16, simply add enough sugar to register 16 degrees on the scale, or make the solution 16 per cent sugar and 84 per cent water.

Corn.

Sept. 10, 1904.

Sprague Canners' Laboratory, Aspinwall, Pa.

Prof. E. W. Duckwall. Dear Sir:—Have sent you via National Express, prepaid, four cans corn. They are all processed alike, viz., 60 minutes, at 12 pounds. Please examine and see if they are cooked enough to save, etc. Also you will find (we think) one can with contents very dark color. Why is this? This plant has been closed since 1902 and we use the Hemmingway gun cooker and thought likely it was not cleaned thoroughly and that the dark goods were all first batch. All that came after first 420 cans seem to be O. K.

Yours truly.

There were no living bacteria in any of these cans; the process seems to have been sufficient to destroy the bacteria.

Can No. 1—Too sweet; color too white; flavor fair.

Can No. 2—Too sweet; can not full enough, otherwise same as No. 1.

Can No. 3—Corn contained foreign matter, probably the machine not clean.

Can No. 4—Too sweet; color good; flavor good.

Kindly let us suggest that corn be put up as nearly in its natural state as possible. A little granulated sugar in the brine sometimes improves the taste. The use of bleaches is to be deplored.

Sept. 13, 1904.

Mr. E. W. Duckwall, Aspinwall, Pa.

Dear Sir:—We are sending you to-day via American Express, prepaid, two cans corn marked "A" and two cans marked "B" from to-day's pack.

We wish you would give these cans prompt examination and report to us via wire at our expense whether they are thoroughly sterilized or not.

Thanking you for your many attentions, we remain,

Very truly yours,

After incubating these cans for 48 hours, we opened them and could find no bacteria in the juice of either A or B.

The flavor and color of this corn is very fine, and the only criticism we would make is on the consistency. The corn would be better, if made with less water—not very much less, however. Sterilization is complete in all cans.

What is Ptomaine Poisoning?

Criticism of an article in Scientific American of July 2, 1904, headed, "Insulating Apparatus for Canned Goods to Prevent Ptomaine Poisoning."

There is such widespread misconception of ptomaine poisoning, not only among people in general, but also among physicians and professional men, that a discussion of this subject is in order.

Strange to say, canned goods have had to suffer much blame for ptomaine poisoning, the charges having been made by physicians who were called in to attend cases of this kind. In nearly every case of this kind reported there is absolutely no proof that canned goods are to blame for the poisoning, and marvelous to say, not half of the physicians who make the charges, know what a ptomaine is. Many of them have an idea that a ptomaine is some kind of metallic poison such as oxids of tin, lead, or zinc, and with this false conception, it follows naturally, that canned goods are viewed with suspicion by the physician who is called in to attend a patient who has become suddenly ill after eating. I know of quite a number of cases where the blame for sudden illness was charged at once against canned goods, simply because the patient had by chance, eaten some such prepared food.

We quote a portion of an article published on July 2, in the Scientific American, in which it is made to appear that the metals of tin cans are responsible for ptomaine poisoning. When such misconceptions find their way into journals of such high standing as the Scientific American, we do not wonder that even physicians are led into the error, but as canners we must be well informed in order to be able to protect our good name and reputation.

"Now that preserved tinned or canned foods, such as meat, fish, fruits, and other comestibles, constitute such an important factor of commerce, it has become imperative that the contents should be protected from any organic or chemical action that may be set up, either through the contact of the edibles with the metal of the tin, or the solder with which the lid and can, when filled, are sealed. Indeed, the liability of ptomaine poisoning arising from many of these causes constitutes one of the gravest dangers of the tinned preservative, and is one of the most difficult problems that has to be surmounted. Many devices have been contrived to secure this desideratum, but they have proved only partially successful.

An ingenious invention has, however, now been devised, by which all possibility of the preserved contents coming into contact with the metal lining of the tin has been entirely and successfully overcome. The apparatus is the idea of Mr. James Dowling, of London, and has already been adopted by one of the most prominent canning firms of Great Britain.

The principle of this contrivance is that a lining of parchment—this substance is preferable, as it is impervious to any of the liquid exuding from the preserved comestible—paper, or some such similar material is fashioned, in which the article of food is placed. By this means it is impossible for the edible to come into contact with the tin at any part, and therefore all possibility of ptomaine poisoning from this cause is absolutely obviated. * * * It is hoped in England that, owing to the frequency of ptomaine poisoning cases, it will become compulsory to provide the tins with some such linings as are made by this machine, in which event it will have a great future."

In order to understand the false premises in the quoted article, let us investigate the meaning of the word "Ptomaine." The word ptomaine comes from the Greek word ("Ptoma"), which means a cadaver, and Selmi, the famous Italian chemist coined the word to describe a poison which was isolated from a decomposing body. Other investigators followed, and methods for extracting ptomaines in pure forms were discovered. Brieger discovered several very important methods, which have become classical. Dragendorff, Gautier, Etard,

Photomicrograph of proteus sulphurans, a putrefactive organism which was isolated from decaying haddock. It forms great quantities of sulphuretted hydrogen. In all culture media the odor is abominable. It is actively motile and bores into the deepest layers of decomposing flesh. It has a wonderful array of flagella. Stained by our own special method and mounted in xylol balsam. Mag. 1,200 diameters.

Vaughan and Novy, have added much valuable information to this department of chemistry, and the literature is classical. Vaughan and Novy describe a ptomaine as "An organic chemical compound, basic in character, and formed by the action of bacteria on nitrogenous matter. On account of their basic properties, in which they resemble vegetable alkaloids, ptomaines may be called putrefactive alkaloids. They have also been designated as animal alkaloids, but this is a misnomer and is more properly restricted to the leucomaines—

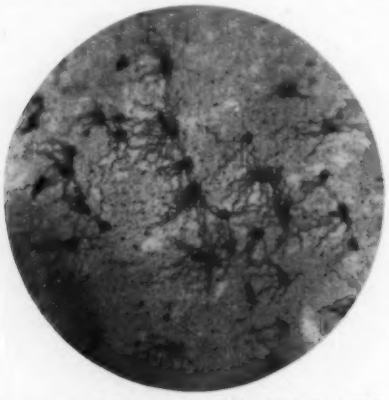
Photomicrograph of Proteus Vulgaris Bacteria which produce a ptomaine. Flagella demonstated by author's method. Magnified 1,500 diameters.

those basic substances which result from tissue metabolism in the body." (Cellular Toxins.)

Ptomaines are always formed as a result of decomposition of animal and vegetable matter by the agency of bacteria. A ptomaine is never the result of the action of an acid on any metal. A ptomaine is a substance which compounds with acids and forms salt. Not all ptomaines are poisonous; in fact only a few of them are so considered. They all contain nitrogen as an essential part of their basic character. Some of them contain oxygen, while others do not. As we have said, ptomaines are the products which are elaborated by cer-

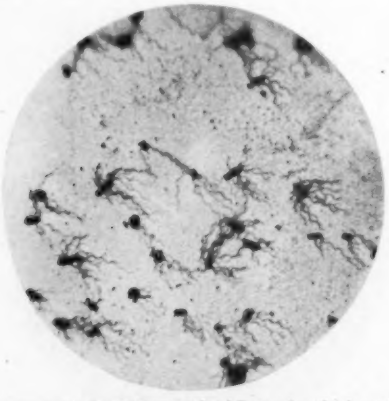
tain species of bacteria, which are allowed to multiply in certain kinds of food. It is a well known fact, established by recent investigation in bacteriology, that certain bacteria produce toxins, and it is quite likely that those ptomaines which are extremely poisonous, contain some of these poisonous substances called toxins. There is a large number of bacteria which produce toxins; in fact, the entire pathogenic class of bacteria produces them, varying in poisonous properties, according to the nature of the germ, and the substance upon which it is growing.

There is another class of bacteria which not considered strictly pathogenic, since organisms belonging to this class do not produce any specific disease, but they are able to pro-



Photomicrograph of Proteus Mirabilis Bacteria which produce a ptomaine. Isolated from putrifying meat. Flagella demonstrated by author's method. Magnified 1,200 diameters.

duce ptomaines during the process of putrefaction. There are numerous bacteria which have been isolated from putrefying substances and cultivated on various media, and the ptomaines which they have formed have been extracted. The most important organisms so far discovered are proteus vulgaris, proteus mirabilis, proteus zenkeri, bacillus coli—commune, bacillus enteritidis, bacillus botulinus, bacillus bovis morbificans, etc. These all belong to the class which set up putrefaction. Many of the toxins and ptomaines formed by strictly pathogenic bacteria have also been extracted from bouillon cultures. Some of the pathogenic bacteria produce



Photomicrograph of Proteus Zenkeri Bacteria which produce a ptomaine, isolated from canned meat. Flagella demonstrated by author's method. Magnified 1,200 diameters.

three or four different kinds of ptomaines, and the real poisonous principle, is a toxin. It is interesting to hear the answers given by various physicians to the question: "What is a ptomaine?" Some of them have no idea of its nature; others have just a vague idea, and very few are able to name more than one or two, perhaps none.

Frequently it happens that people become suddenly ill, and by the symptoms they present the appearance of having been poisoned. As a rule the physicians inquire at once what kinds of foods have been eaten, and if by chance any canned goods are named, they almost invariably charge the sudden illness to a ptomaine in the canned goods. On one occasion a physician declared to me that his patient was suffering *from a ptomaine or lead poisoning from the can.* He made no distinction whatever, between metallic poisons and ptomaines. Ptomaine poisoning is indeed quite common. It is due to a process of decomposition that is liable to take place in foods which have been allowed to stand exposed to the air. In the air are various putrefactive organisms, and these will begin the work of decomposition and will elaborate poisons, which may not be perceived by either taste or smell.

We frequently hear tell of picnic parties becoming poisoned from eating ice cream, and in former years such poisoning was commonly ascribed to the metal in the freezers. This old idea still clings in the minds of some of the physicians of the "Old School," but in the light of modern research we know that such is not the case, but that such poisons are the result of *unperceived* decomposition having progressed in the milk or cream previous to freezing. After suppers and banquets, it sometimes happens that many persons are taken suddenly ill, and in nearly all such cases a ptomaine is responsible for the trouble, but it is not at all likely that canned goods could ever be found to be responsible. In fact, it is one of the most improbable accusations to say that canned goods were responsible for ptomaine poisoning. As a rule, packers are extremely particular in selecting strictly first-class material for canning purposes, and after such material is canned all bacteria are necessarily destroyed during the sterilization, and therefore no putrefaction could proceed. If for any reason, however, the contents should be opened and exposed, like any other food, it is liable to putrefaction, and a ptomaine might be formed by bacteria gaining entrance from the air. To be sure if canners should be guilty of packing material in a partial state of decomposition, a ptomaine might be sealed up within the can and not destroyed during sterilization, but such practices are not common. No firm with any regard for its reputation, would risk injury to its brand of canned goods, by offering for sale anything of this kind. Seeing then, that ptomaines are elaborated by living organisms, and are not identical in any way with metal poisons, such as tin, lead, zinc and copper, it is difficult to see how a piece of parchment paper could be of any value whatever, in preventing the formation of a ptomaine, where no ptomaine is present, nor any of the germs which form these poisons. Parchment paper is frequently inserted in tin cans; a circle on the bottom, a large band to cover the interior surface of the body, and a circle to cover the top, so that goods which are liable to become darkened by coming in contact with the metal may thus be protected, and the natural color preserved. One of the most common uses made of parchment paper is for the protection of canned shrimp, and there might possibly be many other kinds of foods which could be protected in the same manner. In canned goods of this kind, great care should be exercised in the preparation of the raw material for canning. It should be perfectly fresh, free from any taint or odor, and the amount of salt used should be a minimum Salt, in connection with normal acids, has a very great tendency to dissolve the tin coating of the can, and we call our readers' attention to an investigation previously described in this laboratory report.

Summary.

Ptomaines are products elaborated by bacteria. They are not due to any action on metals. Metallic poisoning is quite a different matter. Parchment lining for cans has no value as a preventive of ptomaine poisoning. Parchment lining is valuable as a means of preserving delicate colors of certain substances. Ptomaines are seldom found in canned goods, and we do not know of any well authenticated case traceable to them. Ptomaine poisoning is generally the result of eating food undergoing decomposition by putrefactive and pathogenic bacteria. Since the art of canning goods in hermetically sealed containers is based upon the destruction of all living or organized ferments, we would declare that there would be far less danger of ptomaine poisons in such goods than in the ordinary food products in the open market in a raw state.

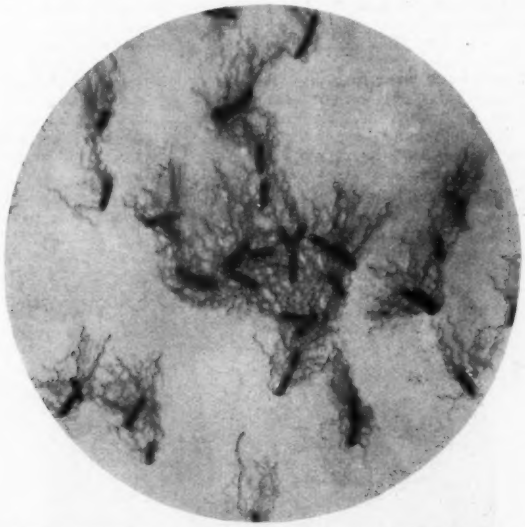
The Demonstration of Flagella. Method Used In the Sprague Canners Laboratory.

Recently we have had quite a number of complimentary letters from various sources, some from our professional friends and some from the canners, inquiring what method we use to demonstrate flagella or organs of locomotion of motile bacteria. Nearly all motile bacteria propel themselves through fluids by means of one or more hair-like bodies which grow out from the membrane of the cell. Flagella are present most frequently in very young cultures of bacteria. As the rods grow old, and when spores form in the cells of

spore-bearing bacteria, they lose their motion; nearly all of the flagella drop off and are dissolved in the surrounding fluids. Sometimes, however, we see rods having spores fully formed, and still possessing flagella. Bacillus butyricus and bacillus tetanus are two examples which retain some of the flagella, even after the formation of spores. There is a great difference in the flagella of the different organisms. Some are very long, and only slightly wavy; others are quite wavy or curled; some are absolutely straight; some are so very fine and delicate that they are difficult to demonstrate by any

Photomicrograph of young vegetating rods of the anaerobic pea bacillus found in can of swelled peas. It forms terminal spores in three days. The young cultures are actively motile, being endowed with numerous very curly flagella so characteristic of anaerobic varieties. This specimen was stained with difficulty. Mag. 1,000 diameters.

staining method known. Some organisms possess flagella which take the stain quite readily, and they stand out plainly so that they may be photographed easily. Organisms which produce slime and products of mucinous character, present serious difficulties in the demonstration of flagella sufficiently clear for photographing. Some organisms produce so much slime, even in very young cultures, that the flagella cannot



Photomicrograph of a slime producing bacillus isolated from peas. It was slowly motile, able to grow in the presence or absence of oxygen, produces acids without formation of gas. It is closely allied to Bacillus Mycoides. Owing to the formation of slime, the flagella were difficult to demonstrate, the slime was precipitated with chloroform, and the flagella were stained with a mordant and carbol fuchsine. Mag. 1,000 diameters.

be clearly stained by any of the well known methods. Such organisms have been described by some authors as being "non-flagellated," their motion being attributed to some sort of a sheath surrounding the cell. As a matter of fact, however, the writer has never met with any motile organism which did not actually possess flagella. Where slimy or viscous products are present, a very thin layer of the stain completely covers the flagella and unless this is removed, those organs of locomotion cannot be demonstrated. Bacteria having flagella growing out from all over the surface are called peritrichous organisms. Those having a bunch of whips or flagella growing out from one end of the cell are called lophotrichous organisms. Those having a single flagellum are called monotrichous organisms. An example of the first kind would be bacillus vulgaris; of the second kind, cyanogenus; of the third kind, Asiatic cholera. The number of the flagella which an organism possesses does not indicate the

Bacillus Y magnified 1,500 diameters. Photomicrograph showing bacilli endowed with numerous flagella. Young vegetating rods from a transparent growth on Agar. Stained by our own method.
This organism was isolated from a can of sour corn. It produces no gas, and gives rise to spores of great viality.

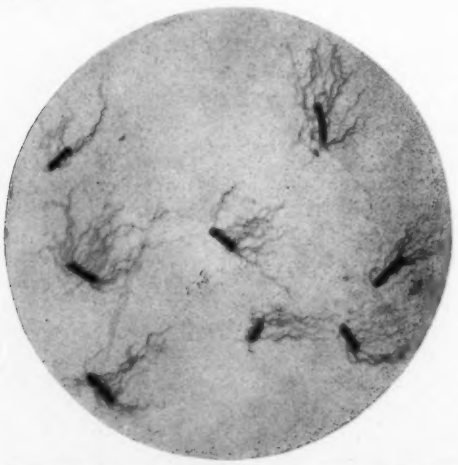
active motility. It is well known that bacillus megatherium has numerous flagella, but it is very sluggish in its movements, while Asiatic cholera, with only one terminal flagellum is probably the most active organism known. In proceeding to demonstrate organs of locomotion, it is essential that we have a young and free growing culture, and in order to get this we proceed as follows:

We inoculate a tube of bouillon or other nutrient fluid, with a small amount of the culture, and allow it to grow in

Photomicrograph of Bacillas Z, a very actively motile bacillus isolated from a can of bitter, sour corn. It has numerous flagella and stains well by our laboratory method. It is an anaerobe facultative aerobe and imparts a slightly bitter flavor to corn. Magnified 1,500 diameter2.

a temperature best suited for the multiplication of the germs. Nearly all of the aerobic and facultative anaerobic motile organisms, will cloud the bouillon within twenty-four hours. We find that 2 per cent agar freshly made is the best medium for making streak cultures. We take a platinum loop full of the bouillon culture and streak it over the surface of this agar medium in a Petri dish. We then place the dish in an optimum temperature and watch it carefully. Sometimes

the growth starts within four to six hours after streaking and a very thin and almost transparent growth extends rapidly outward in all directions from the line of inoculation. This growth is composed of very young bacilli, and these possess the greatest equipment of flagella. We take a small quantity of boiled distilled water, and after it cools we place some of it in a watch glass. We then take up a small quantity of this thin transparent growth by means of the curved platinum wire, and transfer it to the water. In taking up the growth great care must be observed that none of the agar is removed with the germs. When agar is taken up with the culture, we cannot by any possible means get a clear field after staining. It might be necessary to make two or three transfers before we get enough of the culture to thoroughly cloud the water. It is advisable to sterilize the wire by heating it to whiteness in the bunsen flame, before each transfer. This will serve to protect the culture from contamination, and will also cleanse the wire from clinging debris. No attempt is made to stir up the water after this transfer. Any agitation of the water is liable to knock off some of the flagella, because they are very fragile. The motile organisms will separate and find their way to all parts of the water in about ten minutes usually, and those which travel towards the outer edge of the water will be the finest specimens of bacteria, and will carry with them less foreign matter than those in the center. The bacteria that are injured during the transfer and deprived of part of their flagella, will remain near the center, so that the preparation taken from the outer edge will likely give the best results, when it comes to staining. Should the organism be one which produces slime, it is necessary to proceed somewhat differently. We take a small test tube and place about one c. c. of the boiled water in it, then make our transfers as previously described, but in this case, however, we must necessarily carry over considerable of the slime. The water will cloud more rapidly on this account, and will contain a smaller number of bacteria, so that it must be made quite cloudy before attempting to make cover-glass preparations. We then take one c. c. of chloroform, and pour it in with the clouded water, gently agitating it for about one minute; then we allow it to stand quietly for a few minutes, before attempting to make a cover-glass preparation.



Photomicrograph of a motile bacillus belonging to the Vulgatus group. Isolated from a can of spoiled apples. The spores of this bacillus probably gained entrance to the apples through a perforation in the can. This bacillus is endowed with numerous flagella which are demonstrated by special staining methods. This specimen was from pure culture on Agar, eight hours old. Photographed through the microscope using 1-12th homogeneous oil immersion lens and acetylene radiant. Magnified 1 200 diameter.

Cover-Glass Preparations.

A cover-glass is a round or square piece of very thin glass (1-100 to 1-200 of an inch in thickness), used in bacteriological technique for staining and mounting specimens of bacteria. They come in boxes holding one-half dozen each, and are covered with a thick grease which is quite difficult to remove. For the demonstration of flagella, it is absolutely necessary that the cover glass shall be clean, so that a drop of the preparation will spread evenly over the surface without forming into droplets. If the preparation does not spread evenly and without forming droplets, no good results can be expected, therefore it is necessary to have some good method of removing this greasy substance. We first pour over the cover-glasses some pure sulphuric acid, and allow them to stand one day. Then we wash off the sulphuric acid and pour on some chromic acid or potassium chromate, and allow them to stand in this for several hours. Then we remove the acid with distilled water and transfer the cover-glasses to a jar, containing absolute alcohol, where they remain until ready for use. We use clean forceps and remove a single cover-glass from the alcohol to a clean piece of linen well washed and free from any grease or fat. After carefully drying the cover-glass, without touching it with the fingers, we take it up in the forceps and pass it several times through the bunsen flame so that every particle of fat or grease is removed, and it must look perfectly clear and free from blemishes. Many cover-glasses are lost after heating in the flame, particularly so, if there are any currents of cold air through the room, but since the preparation of the cover-glasses is so important, the loss of two or three in the attempt to get one in perfect condition, may be expected.

Preparations of the Staining Agent.

The staining agent consists of the mordant and a color or stain, preferably carbol fuchsine, or carbol gentian violet.

The Mordant.

2 grams desiccated tannic acid.
5 grams cold saturated solution ferrous sulphate (aqueous).
15 c. c. distilled water.
1 c. c. saturated alcoholic solution of fuchsine.

The tannic acid is dissolved in the water first, by the application of gentle heat; then the ferrous sulphate and then the alcoholic solution of fuchsine are added.

To these ingredients I have always found it advisable to add a certain amount of sodium hydroxid, a 1 per cent solution, varying from ½ to 1 c. c. The best grade of filter paper is used for filtering the mordant, and there should be left a heavy precipitate. After filtering, the color of this mordant should be of a reddish-brown hue, not clear, but somewhat cloudy, and this mordant must be used within five hours after it is made. After that time, it loses its staining power. This is indicated by its gradual clarification and darkened color. It gives the best results when strictly fresh, and accomplishes its work in a much shorter time, so that very little if any heating is required when it is placed on the cover-glass preparation.

Carbol Fuchsine.

Take about one gram of granulated fuchsine (not the acid fuchsine) and put it in a bottle, and pour over it about 25 c. c. of warm absolute alcohol. Shake vigorously, and let it stand for several hours before using. The carbol fuchsine is made by diluting the saturated alcoholic solution four or five times with a 5 per cent solution of carbolic acid. Carbol fuchsine should be made fresh and heated and filtered before using.

Method of Staining Flagella.

Photomicrograph of a bacillus isolated form a can of spoiled spinach. It is endowed with numerous flagella, which were easily demonstrated by our own special staining method. This specimen is from a very young growth on agar. Mag. 1,000 diameters.

Every organism differs from other organisms in its manner of absorbing the stain, so that some experimental work is

necessary to determine just how the stain should be applied. In a general way we proceed as follows: A small loop full of the clouded water, obtained as described in the first part of this article, is transferred to the cover-glass and gently spread over as large a surface as possible. Care must be exercised in spreading the drop. I usually carry the drop around the surface without touching the glass with the loop. In this way the surface is moistened, and the loop does not tear off the flagella. The spreading must be done rapidly because evaporation takes place very soon. After evaporation takes place, there should appear a very thin film on the glass. This must be fixed in the flame so that the bacteria will not wash off during the staining, but the fixing must not be accompanied by too much heating, because the delicate organs of locomotion are easily burned off. The bunsen flame should be about one inch high; the glass held by the forceps, preparation side up, is passed down on to the flame just once and instantly removed. The cover-glass is then ready for the mordant, which is poured on, just enough to cover the surface, without flowing over the edges. I find that the Cornet forceps are best suited for staining purposes, and if the cover-glass be held just a short distance within the edge, the mordant or stain will not run off. It usually happens that we are unsuccessful in demonstrating flagella, if the mordant runs off, or goes on the under side of the glass. During the steaming of the mordant, it is advisable to keep up a rotary motion so that the mordant may not precipitate. When the mordant is fresh, it requires only about one-half to one minute to get sufficient staining. The mordant is completely washed off under the tap, and this is done pretty thoroughly; three or four drops of absolute alcohol are then poured on to the surface, and this is instantly washed off. The alcohol removes a great deal of the precipitation which is found in cover-glass preparations, but considerable care should be taken to wash it off quickly and thoroughly; because it will remove the germs and flagella, if it is allowed to act only for a short time. If the alcohol is thoroughly washed off, the water is removed by holding the glass edgeways to a piece of filter paper. If the filter paper is not clean, considerable fiber and dust will be carried up on to the cover-glass, and if there is any danger of this, it is better to finally wash the cover-glass off with the distilled water and shake off the drops which cling to the glass. Then cover the surface with a carbol fuchsine or carbol gentian violet. I find in nearly all cases, that fuchsine is better than the violet, and gives less precipitation, but in some cases the gentian violet brings out the flagella more prominently. This must be made fresh, however, and thoroughly washed off after staining. We allow the fuchsine to stand on the cover-glass for about one-half minute, being heated just sufficiently for a thin vapor to be visible. We then heat it so that steam is given off quite freely, but never until ebullition takes place. Care must be used when heating the stain, because it is not unusual to find that there is entirely too much precipitation, and the flagella are burned off. It rarely happens that we get a cover-glass which will be stained well all over. Usually we get only certain sections where the flagella stand out prominently, and the field is free from precipitation. I have had some cover-glass preparations show well on the outer edge, but not good at all in the center, and vice versa. Views sufficiently attractive for photomicrographing are rare. While the staining may be perfect, there will be some defects in the germs. Some may have lost part of their flagella, or there may be too much precipitation in the field, or the germs may be too close together or too scattered, and the ideal views for photomicrography are few, and it is sometimes necessary to stain up several cover-glasses, before we get a fine view.

Some writers advocate the idea of examining the cover-glass preparations on the slide with a drop of water under the cover-glass, before finally clearing and mounting the specimen. I have been unfortunate in this procedure, and on several occasions have lost some beautiful specimens on attempting to float off the cover-glass with water, after examination. It frequently happens that the germs will stick to the slide and pull off, leaving graves surrounded by beautiful bunches of flagella, so I make it a rule to clear and mount my cover-glass in xylol-balsam, as soon as I have finished staining. I do this as follows:

I select very thin slides, pieces of glass about 3 inches long and 1 inch wide, perfectly clear, and having no blisters. Having thoroughly cleaned the slide, I heat it over the flame to drive off moisture, and place in the center a small drop of xylol-balsam (which is Canada balsam dissolved in xylol, and comes in collapsible tubes). After thoroughly drying the water from the cover-glass after staining, I pour pure xylol all over the surface, and immediately touch the edge to clean filter paper, and then drive off the xylol with heat. It is absolutely necessary to have the cover-glass free from moisture before applying xylol. (Xylol is a refined benzine.) Otherwise, a hazy appearance will be imparted to the preparation, and this spoils it for microscopical purposes. After clearing the xylol and drying, the drop of balsam is heated gently and the cover-glass preparation side down, is pressed on to the slide so that the balsam is spread out in a thin layer between the two pieces of glass, and the preparation is, of course, thus protected from injury. The method for the demonstration of the flagella of different organisms varies, as we have said. The differences which I have noticed have been in the length of time allowed for staining with the mordant, and the fuchsine; also the amount of 1 per cent sodium hydroxid. Great success is achieved only by careful and patient study of each organism. It is not a difficult matter to demonstrate the flagella of most motile organisms, but to get beautiful preparations is a study, and requires great care in every step of the work. The staining of anaerobic bacteria to demonstrate flagella and giant whips is practically the same, except that it rarely happens that we can get a growth under two days. Anaerobes do not grow as rapidly as aerobes, and facultative anaerobes. The easiest species for staining flagella which I have encountered, are proteus vulgaris and bacillus typhosus, and a germ found in spoiled canned spinach, also one isolated from spoiled canned blueberries. Nearly all others have peculiarities and require special study for satisfactory results.

Some organisms do not have the thin spreading growth, which we described in the first part of this article, and preparations for staining from such cultures, must be taken from the very edge of the growth. Flagella staining is an interesting study, and repays the efforts put forth to achieve success, because it shows just how germs actually look, and it is my belief that illustrations of bacteria should be true to their appearance. After one has become familiar with the different kinds of flagella, he is able to ~~distinguish between~~ different species of bacteria by their appearance, and while he may not be able to state positively just what organism he is investigating, he has one available means of identification which will assist him materially.

Preservatives—Continued from the July Report.

Since it has become known among scientists that the preservatives commonly used in food products are largely excreted by the kidneys, a claim has been set up that the extra amount of work which is forced upon these already overworked (?) organs, will necessarily lay the foundation for

PLATE IV

Photomicrograph of Kidney of Guinea Pig No. 4., showing malpighian bodies and cell arrangement. There is no evidence of inflammatory or degenerative changes Mag. 150 diameters.

kidney diseases of various kinds. In Bulletin No. 100 of the Kentucky Agricultural Experiment Station, page 101, speaking of preservatives, the writer says that "they are eliminated by the kidneys and that such elimination gives rise to various forms of kidney trouble."

This statement is made without any quotation from medical literature to sustain it, and the reason is obvious, since no

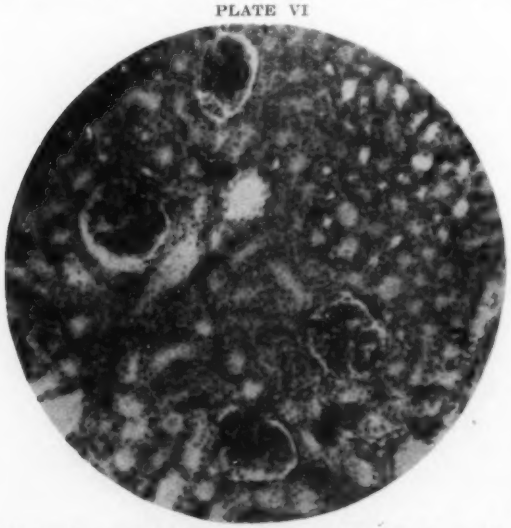
such statement is thus made, so far as I am able to find. A question was once asked of a noted physician, "Within the last few years Bright's disease has increased, and is it not possible that preservatives in food products might be one of the principal causes?" He answered that he did not think so, because there are several other causes at work, which had such direct responsibility for kidney diseases, that it was

PLATE V

Photomicrograph Kidney, showing malpighian body and convoluted tubule of Guiena pig No. 1. Bowman's capsule and the beginning of the urinary tubule or canal. All cells are normal. Mag. 500 diameters.

hardly likely that preservatives commonly used in food products, were in any way contributory; that more kidney diseases were directly caused through invasion by micro-organisms, such as the gonococcus and bacterium pyocyaneus, also streptococcus and staphylococcus aureus et al.; and since such increase of gonorrhoeal infections has been reported by the

PLATE VI



Photomicrograph of sections of kidney of Guinea Pig No. 5. No degenerative changes either in the capsule of Bowman nor in the glomerulus. The ascending and descending limbs of Heule's loops are normal in size and appearance. The collecting tubules are normal. The interstitial connective tissue cells are stained with distinct differentiation. Mag. 150 diameters.

various medical societies, kidney diseases may be traced in many cases directly to this malady."

It is reasonable to suppose that preservatives would have an antiseptic influence on micro-organisms which invade the kidneys, and as antiseptics they would prove beneficial, as indeed they are, and are prescribed in medicinal doses for that very purpose. There is a theory that antiseptics taken in food continuously, must exert an irritating influence on the kidneys, and eventually must cause abnormal changes, followed by the invasion of micro-organisms.

The kidneys are endowed by nature with the power to dissolve all kinds of irritating and poisonous substances from the blood stream, and afterwards to expel them through the urine, so it is not a fair presumption to suppose that they are injured because certain substances are supposed to have irritating properties. We should naturally expect to find some evidence of irritation on the mucous membrane of the stomach prior to any injury to the kidneys. In cases of Bright's and kindred diseases, the post mortems often reveal the fact that the stomach is normal in every way, and this would seem to prove that hyperplastic processes were caused through invasion by bacteria.

There is very little medical testimony to prove that diseases of the kidneys are due to overwork in eliminating substances which pass unchanged through the body. One writer has mentioned salt as a substance which is excreted by the kidneys. This chemical passes through the body as sodium chlorid and does not cause any abnormal processes of kidney degeneration. Another writer speaks of water as a substance which passes unchanged through the body and is excreted by the kidneys without any injury to them; therefore it is not a sound argument that because a substance passes unchanged through the body, it must overwork the kidneys.

There are probably no organs of the human body more ad-

PLATE VII

Photomicrograph of Suprareal and adjoining adipose tissue showing capsule, cortex and part of medulla. The cells are normal. No pathological changes.

From a section of Guinea Pig No. 4 which was fed 5 milligrams of benzoate of sodium daily for two months. Mag. 100 diameters.

mirably capacitated for work than the kidneys. There are two of them, and ordinarily there is very little more than enough work for one; the other is always ready, however, to assist in the elimination of foreign substances from the blood-stream. Some experiments have been made with animals, to determine working capacity of the kidneys, and it was proven that three-fourths of a kidney could be cut away before any serious consequences could be detected. (Albutt's System of Medicine, Vol. iv, p. 318.)

Americans consume large quantities of nitrogenous foods and an unusual amount of work is forced upon the kidneys in order to expel the nitrogen, but there are a number of cases on record, where human beings have lived for many years with only one kidney, which had to do all of the work devolving upon these organs. This would indicate that any person having two normal kidneys would not be seriously overworking them, by allowing them to expel a very small quantity of such preservatives as salicylic or benzoic acid.

The kidneys must excrete the uric acid from the body, and salicylic acid is helpful in its removal, and for this reason the preservative is given as a remedy for rheumatism. (Practical Therapeutics—Hare, page 341.)

Salicylic acid unites with glycin forming salicyluric acid, also benzoic acid unites with glycin forming hippuric acids, and both of these antiseptics are therefore helpful in assisting the kidneys to expel the glycin, or as it is commonly

known glycocoll, or amido-acetic acid. (Cushny—Pharmacology and Therapeutics, page 417.)

In the London Lancet of Nov. 25, 1899, page 1,427, Cushny rather opposed salicylic acid, because it was excreted from the body in a form unlike any product of normal urine, but he did not oppose benzoic acid because it was excreted as hippuric acid, which is found in normal urine.

Dr. R. G. Eccles has pointed out the false reasoning in this, however, because:

Salicyluric acid is salicylic acid plus glycin.

Hippuric acid is benzoic acid plus glycin.

In other words, there is very little difference between the two. Salicylic acid being simply equivalent to hippuric acid plus water.

PLATE VIII

Gall Bladder photomicrograph, showing the wall which is composed of the mucus, fibro muscular, subserous and serous coats.

There are no degenerative changes shown in the cells of the wall. The glands in the tunica propria of the mucosa are normal.

From Guinea Pig No. 1, Series II, which was fed five milligrams of salicylic acid daily for two months. Mag. 100 diameters.

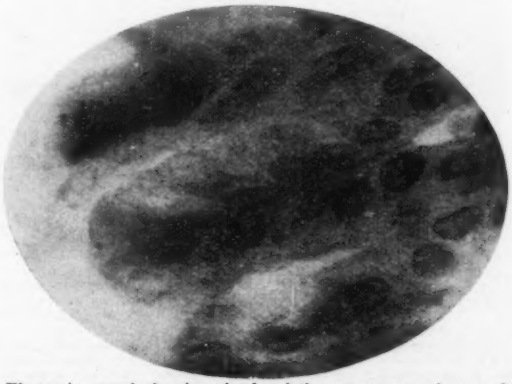
"As glycin or glycocollic acid is a precursor of urea, its removal by means of salicylic or benzoic acid, aids the body in getting rid of its waste product." (American Text-book of Physiology, page 981, also Foster's Text-book of Physiology, page 539.)

It would seem from this, that preservatives such as these are beneficial rather than detrimental. Normal kidneys cannot be injured by them, and since they are antiseptic by nature, it is fair to presume that any one who is suffering with kidneys diseased by invading bacteria, must be benefited by the preservatives which have inhibitory influence upon bacterial life, providing that such antiseptics are not taken in doses large enough to be irritating, or to cause cellular metabolism.

Feeding Preservatives to Animals.

We have completed the second series of experiments to determine the effect of preservatives on animals. We began these experiments on May 14, and fed three guinea pigs five

PLATE IX



Photomicrograph showing glands of the mucuos membrane of the stomach, cardiac end. There is no evidence of degenerative changes. Guinea Pig No. 1. The cells are all beautifully arranged, and show no necrotic processes nor injury from the daily dose of preservatives. Mag. 750 diameters.

millegrams of salicylic acid daily. The preservative was mixed with a well known breakfast cereal. Two were fed with five millegrams of benzoate of sodium daily and other animals were fed the same food as these, but no preservatives. These were controls.

There were three females in the series and we did not know in the beginning that they were pregnant but as they increased in weight so rapidly it became apparent; therefore, on June 11, we discontinued taking the weights of these three. June 17-23 and 25 were celebrated by the birth of the young ones. On July 3 we again began taking the weights as before. This we continued up to July 18, when we sent the five animals to Dr. W. H. Ingram for pathological and histological analysis.

WEIGHTS OF ANIMALS IN OUNCES. Series No. 11.

DATE.	MAY 14	16	18	20	22	24	26	28	30	JUNE 2	5	7	9	11	13	15	17	19	21	23	25	27	29	JULY 1	3	5	7	9	11	13	15	17	18
GUINEA PIG.—No. 1 *Male.* Black Shaggy Coat. Fed 5 Milligrams Salicylic Acid daily.	18¼	18¼	18¼	18¼	19¼	19¾	20	19¾	19	19	19¾	19¾	19¾	19¾	19¾	20¼	19¾	19¾	19¾	19¾	19½	19¾	20	19¾	20	20¼	21	22¼	22	21	21¾	22	
GUINEA PIG.—No. 2 *Male.* White, black hind quarters. Fed 5 Milligrams Salicylic Acid daily.	24½	24¾	24¾	25	25¼	25¾	26	26¼	25½	26	26¼	26½	26¾	27	27¼	27½	27½	28	28¼	28¾	28½	28	28¼	28¾	28¾	30¼	30¼	31	31¼	29¾	29¾	29¾	30¼	
GUINEA PIG.—No. 3 *Female.* White and brown. Fed 5 Milligrams Salicylic Acid daily.	18½	20¼	20½	21¾	22¾	23¾	24¼	24¾	23½	24½	25¾	26	27	....	....	....	....	....	....	....	....	....	....	3 pigs brn	....	20¾	20¾	20¾	20	19¾	19¾	19¾	19¾	
GUINEA PIG.—No. 4 *Female.* Brown, red and white. Fed 5 Milligrams Benzoate Sodium daily.	21¾	22¾	22¾	23½	25	26	27	27	26½	27¾	28¾	29½	30	....	....	3 pigs brn	....	....	....	....	....	....	....	....	....	21¼	21¼	21¼	21¼	21¼	21¼	21	21	21½	
GUINEA PIG.—No. 5 *Female.* Dark brown and white. Fed 5 Milligrams Benzoate of Sodium daily.	17	17¼	17¼	17¾	18¼	18½	19½	19	18½	19¾	20½	21½	21¾	....	....	....	....	....	....	....	....	3 pigs brn	....	....	21¼	21½	21¼	21¼	21¼	21¼	21	20¾	20¾	20½	

Total time of Experiment, 65 days. Each animal in that time consumed 325 milligrams of preservatives.

Conditions Noted During Feeding.

As stated, we did not know that the three females were pregnant at the beginning of this experiment, but we decided after finding out the fact that it was just as well to go through the experiment under natural conditions. The very fact that

the three females gave birth to young ones within the term is interesting. The young pigs were immediately given adult doses of preservatives as soon as they were able to take food themselves, and our next series will show the result. During the term there was no sign of sickness on the part of any of these animals; all seemed active, particularly the two males. These were quite vicious. One day we had a terrible rain storm which flooded the quarters where these animals were kept and fed, and we rather expected that they might show some signs of sickness, but they did not. This would seem to indicate that the preservatives given had no weakening effect.

The report of Dr. Ingram here appended is very satisfactory. Dr. Ingram is professor of pathology in the West Penn Medical College of Pittsburg, and he is also connected with the Mercy Hospital and is an eminent authority on pathology and histology:

Mr. E. W. Duckwall, Director of Sprague Canners' Laboratory, Aspinwall, Pa.

Dear Sir:—I here append results of analyses of guinea pigs Nos. 1 to 5, Series 2, sent by you to my laboratory for pathological examination.

I. Post-Mortem Examination.

These animals were all killed at the same time, and "posted" while still warm, in manner similar to those of Series I.

PIG NO. 1.—MALE.

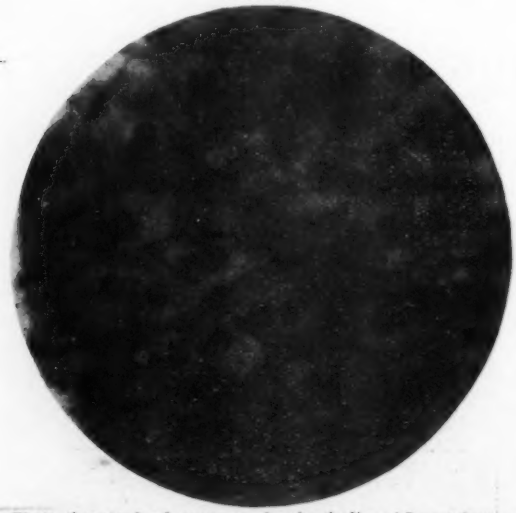
(Fed 5 milligrams salicylic acid daily for 65 days.)*

(a) Black, shaggy coat—a very vicious animal and well developed. Subcutaneous fat, abundant. Lymph glands of inguinal, axillary and cervical regions not enlarged; musculature, normal.

(b) Abdominal Cavity—No gross lesions of any character detected; all organs being normal in size and position. Contents of viscera, normal.

(c) Thoracic Cavity—Lungs distended, normal color; heart and vessels show no changes; no enlarged lymph glands.

PLATE X



Photomicrograph of pancreas, showing bodies of Langerhaus, and gland cells normal in size and form. Guinea Pig No. 2, fed 5 milligrams silicylic acid daily. Mag. 500 diameters.

PIG NO. 2.—MALE.

(Fed 5 milligrams salicylic acid daily for 65 days.)*

(a) White, black hindquarters. Very large pig. Vicious and well developed. Subcutaneous fat, normal; musculature, normal. Axillary, inguinal and cervical glands, normal.

(b) Abdominal Cavity—Nothing abnormal, either in position or size detected. Visceral contents, normal.

(c) Thoracic Cavity—Nothing abnormal in color, position or size of lungs, heart or lymphoid tissue.

PIG NO. 3.—FEMALE.

(Fed 5 milligrams salicylic acid daily for 65 days.)*

(a) White, brown hindquarters, nose black, well developed, soft coat. Subcutaneous fat normal. Musculature, same. No enlargement of lymph glands, of axillary, inguinal or cervical regions.

(b) Abdominal Cavity—No pathological changes in size, shape or position of organs. Not pregnant. Uterus and ovaries normal. No enlargement of lymphoid structures. Contents of viscera normal.

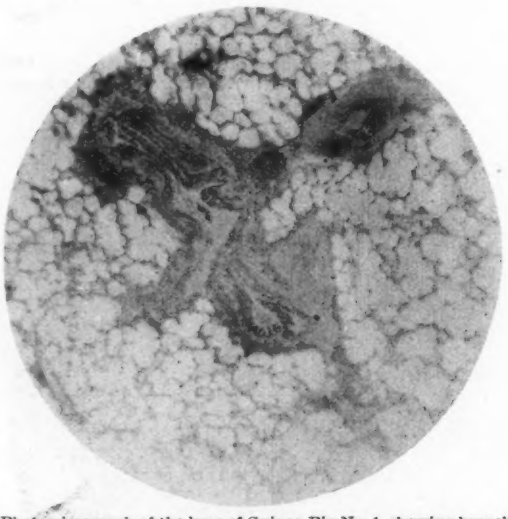
(c) Thoracic Cavity—Nothing abnormal of any character detected.

PIG NO. 4.—FEMALE.

(Fed 5 milligrams benzoate sodium daily for 65 days.)*

(a) Brown and red forequarters and face; white hindquarters. Well developed, smooth coat. Subcutaneous fat abundant. Musculature, normal. No enlargement of lymph glands in any part.

PLATE XI



Photomicrograph of the lung of Guinea Pig No. 1, showing bronchus with convoluted mucosa. The clear spaces are air passages and infundibula. The notches in the walls of the clear spaces are the air vesicles. Conditions normal. Mag. 50 diameters

(b) Abdominal Cavity—No changes of any character detected. Uterus contains four embryo pigs, 1.5 c. m. long. These are normal.

(c) Thoracic Cavity—Nothing abnormal.

PIG NO. 5.—FEMALE.

(Fed 5 milligrams benzoate sodium daily for 65 days.)*

(a) Dark brown, white face, right cheek black; left red. Well developed animal. Subcutaneous fat abundant. Musculature normal. No enlargement of lymphoid tissues.

PLATE XII

Photomicrograph showing glands of the mucous membrane of the stomach, cardiac end. The cells are normal in size, and there is no evidence of inflammation or degenerative changes. Section made from stomach of Guinea Pig No. 5, which was fed on five milligrams of benzoate of sodium daily for two months. Mag 500 diameters.

(b) Abdominal Cavity—Nothing abnormal detected in size, shape or position. Visceral contents normal.

(c) Thoracic Cavity—No pathological changes detected.

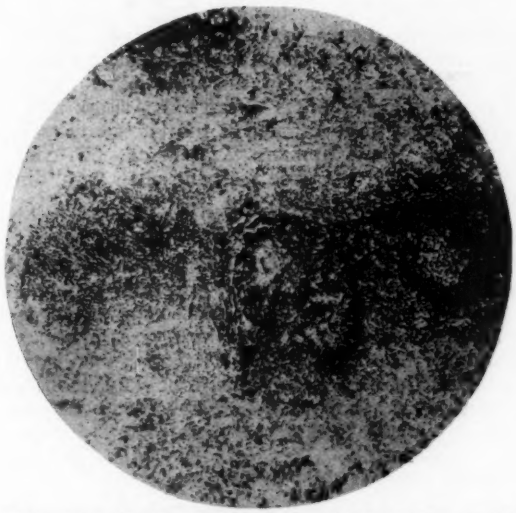
*From Sprague Laboratory Notes.

II. Microscopic Examination.

PIG NO. 1.—SERIES NO. 2.

1. Heart—No. 554 normal in all parts, myocardium, pericardium and enuocardium.
2. Pancreas—No. 555 normal, no changes in bodies of langerhaus.
3. Kidneys—No. 556 normal. No pathological changes.
4. Testicle—No. 559 normal. Spermatogenesis very active.
5. Suprarenals—No. 556 normal.
6. Liver—No. 558 normal.
7. Stomach—No. 557 normal. No changes in either glands of mucosa or in any parts.
8. Spleen—No. 566 normal. Malpighian bodies show no proliferation or degeneration.
9. Lung—No. 553, normal.

PLATE XIII



Photomicrograph of spleen, showing malpighian bodies normal in size and number. No alterations in walls of blood vessels. Capsule and trabeculae show no inflammatory or degenerative changes. Guinea Pig No. 1, Series II. Mag. 75 diameters.

PIG NO. 2.—SERIES NO. 2.

1. Heart—No. 574, normal.
2. Lungs—No. 573, normal.
3. Stomach—No. 578, normal.
4. Pancreas—No. 759, normal.
5. Liver—No. 583, normal.
6. Liver and gall-bladder—No. 582, normal.
7. Kidneys—No. 581, normal.
8. Suprarenals—No. 581, normal.
9. Spleen—No. 580, normal.

PLATE XIV

Photomicrograph of the intestine of Guinea Pig No. 2, showing the crescentic valve-like folds of the mucosa and the villi, also the tubular glands called follicles or crypts of Lieberkuhn.

Running along the base is the muscularis mucosae. Conditions normal. Mag 50 diameters.

PIG NO. 3.—SERIES NO. 2.

1. Heart—No. 562, normal.
2. Lungs—No. 563, normal.
3. Liver—No. 565, normal.
4. Oesophagus—No. 564, normal.
5. Stomach—No. 568, normal.
6. Kidney—No. 567, normal.
7. Suprarenals—No. 567, normal.
8. Liver—No. 566, normal.
9. Spleen—No. 569, normal.
10. Intestine—No. 571, normal.

PIG NO. 4.—SERIES NO. 2.

1. Heart—No. 584, normal.
2. Lungs—No. 583, normal.
3. Liver—No. 587, normal.
4. Spleen—No. 590, normal.
5. Pancreas—No. 588, normal.
6. Stomach—No. 589, normal.
7. Kidneys—No. 586, normal.
8. Suprarenals—No. 587, normal.
9. Placenta and uterus—No. 592, normal.
10. Foetus—No. 593, normal.

PLATE XV

Photomicrograph showing involuntary muscles of the heart of Guinea Pig No. 3. The striations are well marked, and the cells show no degenerative changes. Mag. 1000 diameters.

PIG NO. 5.—SERIES NO. 2.

1. Heart—No. 542, normal.
2. Lungs—No. 543, normal.
3. Liver—No. 544, normal.
4. Spleen—No. 546, normal.
5. Pancreas—No. 547, normal.
6. Stomach—No. 548, normal.
7. Uterus—No. 549, normal.
8. Fallopian tubes—No. 549, normal.
9. Kidneys—No. 551, normal.
10. Suprarenals—No. 551, normal.

PLATE XVI

Photomicrograph of the spleen, showing a highly magnified malpighian body. The cells are all normal and show no signs of inflammatory or degenerative changes. From section of spleen of Guinea Pig No. 3. Mag. 500 diameters.

Numbers following names of organs refer to number of specimens registered in my laboratory register.

Technique.

The organs from these animals were placed in a 4 per cent solution of formaldehyde for fixation. This step was completed while the parts were still warm. The stomach and intestines were spread out flat. Other solid organs were cut into slices about 2 m. m. thick. After remaining in this fixing fluid for about forty hours, they were placed in running water for twenty-four hours, and then in 80 per cent alcohol for preservation.

Parts of each solid organ, measuring 2 c. m. long by 1 c. m. wide and 1 m. m. thick were then placed in alcohols of 90 per cent, 95 per cent and 100 per cent (absolute alcohol 99.8 per cent, Squibb) for twenty-four hours for each per cent. The wall of the stomach was cut into sections having about the same surface area, and including all coats. The sections of the stomach were placed in the ascending alcohols with those from the solid organs.

From the alcohols they were immersed in a mixture of equal parts of 99.8 per cent alcohol and ether for a period of twenty-four hours.

The imbedding was in celloidin. Two solutions were used: One, thin celloidin, in which the sections remained forty-eight hours, and the second, thick celloidin (practically a saturated solution in alcohol and ether), in which they remained forty-eight hours. They were next placed in "wood fiber" blocks, hardened for twenty-four hours in 80 per cent alcohol, and cut on a "Minot Perusion Microtome" two to three micra thick.

Staining was produced by the Hermatoxyin and Eosine method, sections were mounted in Balsam.

All sections stained easily, with sharp differentiation.

3. CONCLUSION.

As examination of above will show, none of these gave any indication, either macroscopically or microscopically, of any discase processes.

As I do not know the history of any of these animals previous to being sent to the laboratory, the only conclusion I can arrive at would be that whatever conditions they had been subject to, they had not produced any organic changes.

Very sincerely,

W. H. INGRAM.

—

The Sprague Canners' Laboratory is located at Aspinwall, Pa., and is under the management of Edward W. Duckwall, bacteriologist, whose researches and investigations into the causes of spoilage and fermentation have gained for him an international reputation.

The Sprague Canners' Laboratory was established especially for the use of packers of canned goods, and no charge is made for services along the line of bacteriological investigation rendered to canners and preservers, while all communications addressed to the director of the Laboratory will receive prompt and careful attention. Those engaged in the canning and kindred industries are invited to submit to the Laboratory any matter on which they think it may be able to assist them, as an earnest effort will be made by Mr. Duckwall to solve all problems in canning and preserving which may be laid before him.

The Laboratory reserves the right to publish all communications and results of researches bearing on subjects investigated, but in every case the name of the party, firm or company submitting same will be considered confidential and treated accordingly.

Address all communications to the Sprague Canners' Laboratory, Aspinwall, Pa.—EDITOR.

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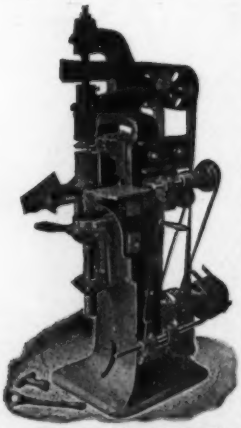

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THE WESTERN PACKERS CANNED GOODS ASSOCIATION

THIS ASSOCIATION includes the canners of twelve states and is the largest and most prosperous organization of Vegetable Canners in this country. Every canner in the Central States who packs Sugar Corn, Peas, Tomatoes, String Beans and Pumpkin would find it quite an advantage to be connected with the organization. The objects of this association are to protect the manufacturers of hermetically sealed fruits and vegetables against unjust and unlawful exactions, to reform abuses, to amicably settle differences between its members, and to aid and assist in promoting among them that good fellowship and friendly intercourse so essential to a successful prosecution of the business. A valuable feature is the report made monthly by the secretary to each member showing by states the acreage planted, future sales, and stocks unsold. The meetings held annually and the special meetings are of much profit to the members. A close co-operation of canners is imperative at the present time to prevent unjust and unwise legislation. Each member makes an agreement to keep confidential the information contained in monthly reports. Membership dues are ten dollars per year.

Active canners in Colorado, Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Kansas, Nebraska, Ohio, Utah and Wisconsin are eligible for membership.

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NEW YORK STATE CANNED GOODS PACKERS' ASSOCIATION

THE OBJECTS of this Association are to foster the interests of the Canned Goods Packers of the State of New York, to protect them from unjust and unlawful exactions, to reform abuses in trade, to diffuse accurate and reliable information among the members, to produce uniformity and certainty in the customs and usages of trade; to promote a more friendly intercourse between packers; to encourage legislation looking to the protection and fostering of the packing interests of the state, and to consummate any other results which shall tend to guard, maintain and publish the high reputation attained by the canning industry in this state in the packing of wholesome foods.

Any person, firm or corporation engaged in the canning business in this state is eligible to membership in this Association.

Membership dues are five dollars per year.

Three regular meetings are held yearly at Syracuse.

Communications should be addressed to

A. R. HATFIELD, *Secretary*
UTICA, NEW YORK

CANNED GOODS NOTES

ILLINOIS.

Fairland, Ill., has a catsup factory owned by the Libby Company of Chicago. Early this year, a manager of the concern engaged from the farmers in that vicinity 100 acres of tomatoes. These tomatoes are being cooked by eight men in a small plant in Fairland a few hundred bushels being used each day. After the tomatoes are cooked to catsup they are placed in kegs and shipped to the principal house in Chicago where the catsup is bottled. The owners of the concern are contracting for tomatoes, pickles, etc., for next season.

INDIANA.

The Henryville Canning Company was compelled to close down on account of the scarcity of water. A mile of piping from a creek was laid to relieve the trouble.

* * *

The Alexandria canning factory shipped three cars—their entire stock of tin cans to the Converse canning factory. The Alexandria canning factory will not run this year.

* * *

The Indiana Canning Company at Evansville is planning to greatly enlarge its plant. It is the intention to build the factory to Ninth street, thus making it cover the entire block. The plans for the work have not as yet been prepared, but steps are being taken to have them in readiness to begin on the work next spring.

* * *

The Spiceland Canning Company, according to a dispatch, expects to can 600,000 two-pound cans of tomatoes, providing the frosts hold off. The plant has already canned more than 325,000 cans. After the stockholders had received a substantial dividend there was money left and the company made each of its employes a present of the amount of their wages for the season.

* * *

The Van Camp canning factory at Martinsville city was advertising for more help to peel tomatoes. The crop is large and the factory is able to can all the tomatoes brought in if help can be got. At present they are throwing tomatoes away because they have no one to peel them. The factory has done an excellent business this season in canning peas, corn and tomatoes, and the tomato season is now at its height. The pay roll of the factory at present is near $2,000 a week.

IOWA.

The Independence factory expected to pack 1,000,000 cans and nearly met their expectations.

* * *

Garrison made a record pack, 100,000 cans per day was made several days during the run.

* * *

The Forest City canning factory had put up five hundred thousand cans of corn Sept. 22.

* * *

The Sac City canning factory has been enlarged this year, increasing its capacity one-third. The crop was good and they have canned up to Sept. 26 2,000,000 cans of corn from 2,000 acres.

* * *

The Waterloo factory raised its own corn from 2,000 acres and to this 3,000 additional acres were contracted, making a total acreage of 5,000. Three lines of machinery were kept busy almost night and day to take care of the product. The plant was in operation six weeks.

* * *

The Cedar Falls Canning Company closed the season Sept. 26. During the last four weeks 650,000 cans of corn have been packed. Last year the company put up 250,000 cans. This year's output has been eclipsed by but one year, 1888, when they put up 898,000 cans. Before the canning factory opens for business next fall, such changes and improvements will be made in the plant that it will not be recognized by those who have watched the growth of the business for the 21 years it has been in existence.

OHIO.

Pressing & Orr have put up about 80,000 cases.

* * *

The total pack of sweet corn of C. E. Sears & Co., for the season, was 250,000 cases.

* * *

The McCoy cannery at Urbana is short on corn, not getting as much as expected from the growers.

* * *

The canning season is over at Amanda and the factory at that place has put up 1,200,000 cans of food products.

* * *

The Port Clinton canning factory is canning large quantities of peaches and tomatoes. The Gypsum factory is also running full blast, and the distillery will fill several vats with small peaches.

* * *

The output of the Scioto Co.'s cannery at Ashville, to Saturday night, 17th, was 131,000 cases, or 2,944,000 cans of sweet corn, which will be increased to about 160,000 cases. The company's branch cannery at New Holland has put up 25,000 cases.

* * *

The first meeting of the stockholders of the defunct Loudonville Canning Company was held Sept. 22. All creditors, about twenty in number, were present. Mr. M. J. Wolf, assistant cashier of the First National Bank in Loudonville, who was receiver, was chosen trustee. The liabilities of the company will approximate $9,700.

MICHIGAN.

The Watervliet canning factory has put up 9,000 bushels of plums.

* * *

The Bear Lake Canning Company sold its three pound cans to a Grand Rapids company.

* * *

The canning factory at Hopkins Station has put up 1,525 cases, or 29,400 cans, of plums this season.

JAS. G. GRIEM, Pres. *JAC. C. SCHMIDT, Vice-Pres.* *ALFRED T. HIPKE, Sec. and Treas.*

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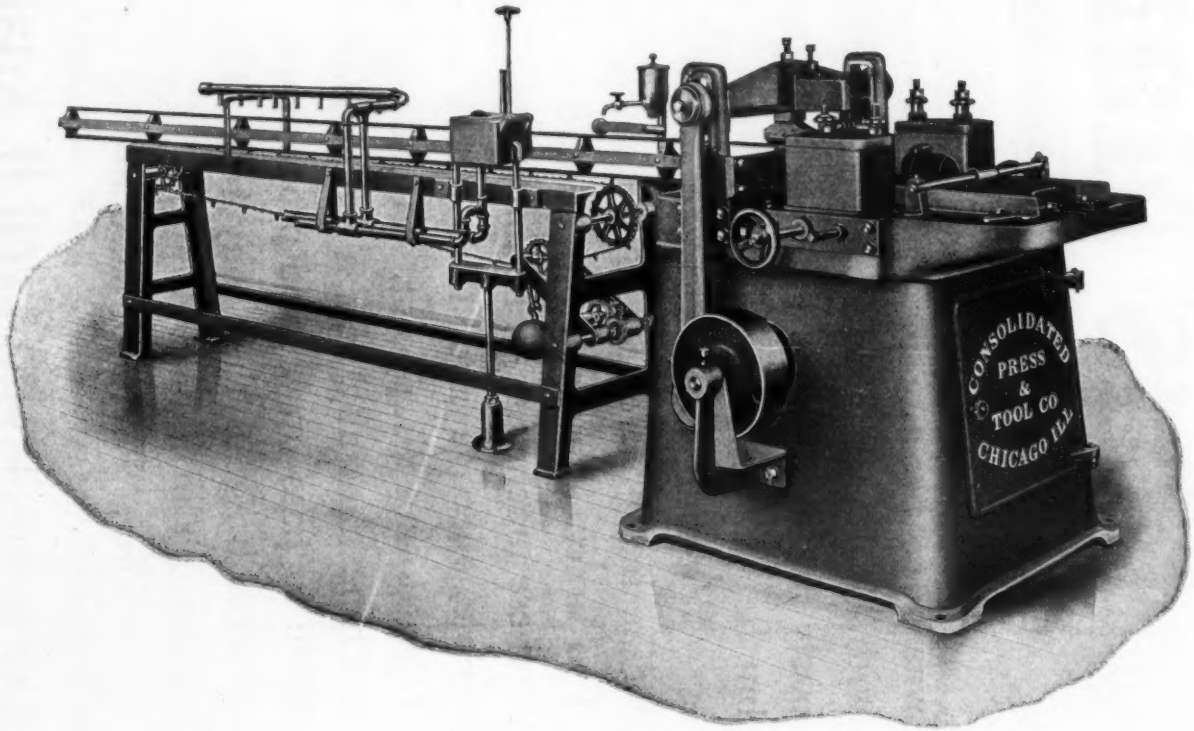

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BUILDERS OF

Automatic Can Making Machinery

The Breckenridge factory's output was cut by inability to get cans. Corn and tomatoes were coming in fast.

* * *

The plant at St. Johns is reported as having put up about 50,000 cans of corn and 15,000 cans tomatoes. H. B. Kneeland is the owner.

* * *

The St. Johns Canning Co.'s factory began operations Sept. 20, and 30,000 cans of corn and 12,000 cans of tomatoes had been put up by the 27th. The capacity is 8,000 cans per day.

* * *

Messrs. L. A. and Edwin Norton, T. A. Assmann and John Hodson, all of New York City, recently inspected the Dunkley canning factory at Kalamazoo and the boats of the Dunkley Williams company, the first three of the above named gentlemen being stockholders in both companies and the Nortons being also members of the board of directors.

* * *

The Elbertas are gone and the gold drops and lemon freestones are in the market alone. Gold drops sell at from 40 to 50 cents a bushel and lemon freestones at 50 to 75 cents. These peaches are almost entirely packed in bushel baskets. Pears are bringing 30 to 75 cents per bushel. The famous Keifers are just beginning to come to market. Apples are bringing from $1.25 to $1.50 per barrel.

MARYLAND.

The new canning factory at Williamsport is having an unprecedented rush of work, and in order to secure a sufficient force to prepare the fruit and corn women and girls have been brought from Hagerstown to assist with the work. The employes are hauled back and forth on the electric railway at the expense of the firm. Hundreds of bushels of peaches are being shipped to the cannery daily from the fruit belt, while tons of sweet corn are being used.

* * *

The tomato canning season in Talbot county is "wound up." Although the season has been ten days shorter than last year, the canners report a most successful pack. The corn packing establishments closed last week. The operators of these factories report an off year. The reason for this was the dry spell which lasted for six weeks. As for tomatoes, at the beginning of the season the farmers' prospects looked anything but favorable, as the continuous rains, followed by the hot suns, seemed to scald the plants considerably. But later on in the season more favorable weather set in and the plants recovered from the injury received and grew rapidly. At a number of establishments operators found it very difficult to secure sufficient labor to enable them to can the fruit. In Easton there are located three of the largest tomato packing establishments on the eastern shore. At the factory of Charles T. Wrightson the business reached over 50,000 cans of tomatoes daily.

WISCONSIN.

The Baraboo factory put up less than 10,000 cases of corn.

The New London factory packed 700 cases of beans, double that of last year. Corn last year did not come in until Sept. 20, while this season the pack began August 26.

MISSOURI.

The Sparta (Mo.) Canning Company has filed a statement of increase of capital from $2,800 to $3,300.

* * *

This will be the best year for the canning industry of Missouri since the first factory was established in southwest Missouri. Taking Springfield as a center and drawing a circle with a radius of 45 miles about 50 canning factories would be included in the territory. These factories are mostly running day and night, trying to keep up with the yield of the tomato crop, the largest ever grown in that section.

NEBRASKA.

The Blair factory put up 85,000 cases.

* * *

The Edgar factory has closed down satisfied and happy, with a pack of over 40,000 cases.

* * *

The Fremont canning factory closed Sept. 24 after a campaign of five weeks. A million cans of corn, filling 40,000 cases, were canned. All the machinery was in operation from August 29 to September 20.

* * *

The St. Paul canning factory completed the season's pack of sweet corn Sept. 27. Something over 37,500 cases of corn have been put up, and although it has been subject to some of the handicaps usually attendant upon a new enterprise, the season's run has been quite satisfactory to the company.

* * *

Fifty-seven thousand three hundred and fifty cases is the result of the Auburn Canning Company's run this season. It took them just six weeks to pack this corn. The company raised about fourteen hundred acres of the corn themselves and the farmers near town raised about eight hundred acres for them. This was all canned except about two hundred acres that has been saved for seed. The largest pack of any one day was on August 31 and September 3, when 77,000 cans were packed each day.

NEW YORK.

The corn crop around Wayland was very light.

* * *

Fourteen dollars a ton was paid for corn by many factories in this state.

* * *

The Taberg factory had a successful run and was little affected by the frost.

* * *

The Burt Olney Canning Company of Oneida, it is said, will be able to fill only half its orders of canned corn, but will be able to fill all the succotash orders. Cucumbers are nearly all harvested in that vicinity. About 2,000 bushels still in the fields are totally destroyed.

* * *

The shortage of the sweet corn crop without regard to frosts near Rome, was occasion for the canning factories to be especially anxious to get from the growers all the corn which had been contracted. To protest their rights in this

respect one of the canning companies started two or three legal proceedings in the way of a civil action; also a mandamus and an injunction.

* * *

The Canastota Canning Company is the highest sufferer of any of the canning factories of that vicinity from the extreme cold weather. This company now estimates that it will be able to fill 90 per cent of its orders. F. F. Hubbard estimates that the frosts ruined about 40 per cent of his crops. Nearly 100 acres contracted for the F. F. Hubbard canning factory still remain in the fields and Mr. Hubbard stated that with the exception of that ready to pick, it was a total loss.

PENNSYLVANIA.

The factories at Manheim and Rothsville worked nights to take care of the product offered.

* * *

The York Haven Canning Company has been incorporated with a capital stock of $15,000.

* * *

The Avondale Packing & Provision Company has been incorporated with a capital stock of $100,000.

* * *

The tomato cannery at Line Lexington has become quite an industry. It is conducted by David Morris & Sons.

* * *

George W. Holtzinger, Horace Welty and Cornelius Strayer are interested in a new canning company which will erect a plant at York City.

* * *

The Star Canning Company of Shoemakersville is building an addition to be used for additional storage purposes. The product of the factory exceeds that of last year, excepting tomatoes, which were destroyed by the frost. Hundreds of bushels were nearly ripe.

MINNESOTA.

The Cannon Falls factory has put up 10,000 cases. This is its first year.

* * *

The Gedney Pickle & Canning Company has offered to building a $50,000 plant at Trempeleau providing the citizens give a bonus of a site and $5,000 cash.

* * *

Promoters at Mayer and Lester Prairie, two villages, are trying to organize canning companies. Chaska has organized and will begin work at once on the erection of a factory costing $18,000.

* * *

The Kenyon Canning Company, with a capital stock of $15,000, has filed articles of incorporation with the secretary of state. The stock is distributed between some eighty different citizens and business firms in and around Kenyon.

MISCELLANEOUS.

A commission was issued to the McClellanville (S. C.) Canning Company, which will have a capitalization of $2,500.

* * *

The factory at Foxcraft, Me., put up this year 250,000 cans as against less than 100,000 the year before.

* * *

The Hemingway Packing Company, Norfolk, Va., oyster packers, has increased its capital stock from $10,000 to $25,000.

* * *

J. M. Wolfe of Seattle, who is interested in a number of ming properties, contemplates putting up a canning factory in Lewiston, Idaho.

* * *

The Fort Collins, Colo., Canning Co. is on the market with a line of Colorado preserves. The novelty of it is that it is put up in regular sized fruit jars, with cap and rubber. On the jar is a plain printed label, without any attempt at style.

* * *

W. Y. Kemper, Franklin, La., is interested in installing an oyster-shucking plant this season, and probably a canning factory for oysters, vegetables, fruits, etc., with a daily capacity of 40,000 to 50,000 cans, will be installed next season.

* * *

The Kokomo Glass Manufacturing Company sues the Blue Grass Canning Company of Owensboro, Ky., for a balance of $223 on a bill of goods amounting to $726.75. The St. Louis Syrup and Preserving Company sues the Blue Grass Canning Company for a balance of $969.94, due on goods purchased.

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Please mention Canner and Dried Fruit Packer

FRUIT NOTES

Western New York apple producers are indifferent to the $1.00 a barrel" bid by buyers and are holding their apples from $1.25 to $1.75 and some as high as $2.75 for Kings and Baldwins.

* * *

Minnesota's potato crop this year, according to commission men, is so badly damaged as a result of the cool damp weather of the past month and a half that it will be necessary to import potatoes from Washington state in order to prevent actual scarcity.

* * *

The apple crop near Chatfield, Minn., is immense. The yield is estimated at 15,000 bushels and already ten carloads have been shipped from this point. Most of the apples are of excellent winter variety and are commanding a good price.

* * *

Apples measuring from fourteen to eighteen inches in circumference and weighing one or two ounces on either side of a pound, were displayed by farmers near Lincoln, Neb., in that city, recently known as the Monarch apple they are of uncommonly large size and of fine quality.

* * *

A dispatch from Sacramento stated that vineyardists are firmly of the opinion that the rainstorm which prevailed for forty-eight hours has done great damage to the grape crop. There is hope, however, that if there should be clearing weather, accompanied by a drying wind, a goodly portion of the crop will be saved. Shipments of grapes to the East will be interrupted.

* * *

The shipment of Elberta peaches from the Paonia, Colo., fruit belt is the heaviest in the history of the county. This year's crop is the largest ever grown in this section, and probably the largest on any equal acreage ever grown anywhere. Shipments amount to from fifteen to twenty-five carloads a day. The peaches are of unexcelled quality and large. Apples, plums and other fruits raised in the valley are yielding very heavily.

* * *

The Dominion Department of Agriculture has been experimenting for the past two years with the spraying of apple trees. At a recent gathering at Ingersoll, to examine the sprayed and also some unsprayed orchards in order to determine definitely the results, the contrast between the apples grown on sprayed trees with those on the unsprayed trees was very decided. Not only were the experts pleased, but the farmers present expressed their satisfaction with what they had seen and their gratitude to the department.

* * *

Fruit in South Dakota has been a heavy crop all the year. One grower picked 2,000 quarts of strawberries, 500 quarts of cherries and 200 bushels of apples. Another picked 240 bushels of apples from 71 trees, seven years old. One tree yielded eight bushels. Daniel Dickerson of Richland picked 11,000 quarts of strawberries and 4,000 quarts of red and black raspberries. He also had 400 bushels of apples. The "western deserts" are exciting comments by these demonstrations of fruit production.

A Tecumseh, Neb., orchardist has sold the entire output of his large peach orchard, the price paid being twenty cents per bushel on the trees. Saturday a carload of 360 bushels were shipped from the orchard to Hastings and two more carloads will be shipped the coming week. Previous to the sale the proprietor had disposed of some four hundred bushels. The yield will be close to 2,000 bushels. Tons of peaches have gone to waste near this point and grapes seem to be destined to a similar fate. The cause of this condition of affairs is the stupendous crop and the almost prohibitive express rates. Friends of the owners of the orchards have been invited to help themselves without stint to the luscious fruit.

Dr. Goldstein of the Chemical Department of St. Petersburg (Russia) University says: "My opinion agrees completely with that of the Russian Society for the Protection of the Public Health, and I believe that SACCHARINE is quite uninjurious to the human organism, and therefore should be allowed to be freely used in all cases." Monsanto Chemical Works, St. Louis. Branches, New York and Chicago.

The Sardine Canning Industry of France.

H. M. SMITH IN ANNUAL REPORT OF U. S. FISH COMMISSION.

Sealing the bottoms on the cans—the next step in the preserving process—is one of the few things done by men. Soldering appliances of various types are used in the different factories. The most convenient, time-saving and modern soldering iron would appear to be that which is kept constantly heated by gas. The handle of the iron is pierced by two pipes, one conveying gas and the other air for admixture with the gas; and the gas is ignited in the head of the iron in such a way as to keep the soldering edge continually at a white heat. The free movement of the iron is effected by rubber tubes connecting it with the main supply pipes extending lengthwise under the table at which the solderer works. While being closed the can is held in a frame on a small turn-table moved by the foot of the solderer. The cover is applied so as to force out the air, and at the same time a good deal of oil escapes. The soldering begins in this oil, at the middle of one end of the can, and is continued around

THE GREAT STICKER
TRADE
STEK-O
MARK
PERFECT PASTE IN POWDER FORM

Let us tell you why such a very large number of Canners use STEK-O and why they use so many thousands of pounds every year

CLARK PAPER & MFG. CO., ROCHESTER, N. Y.
30 Agencies, United States and Foreign

THE SOLVAY PROCESS CO.'S
Chloride of Calcium
PRACTICALLY CHEMICALLY PURE STRICTLY NEUTRAL.
STRENGTH, COMPOSITION AND PURITY GUARANTEED.
Specially adapted for the Continuous Calcium Process of Canning
USED BY SOME OF THE LARGEST CANNERS. FOR SAMPLES, PRICES AND TABLES OF SPECIFIC GRAVITIES AND BOILING POINTS, ADDRESS
THE CARBONDALE CHEMICAL CO.
NEW YORK, 141 Broadway
BOSTON, 544 Tremont Bldg.
CARBONDALE, PA.
CHICAGO, 61 Portland Blk.
PITTSBURG, 727 Park Bldg.

Want Advertisements.

To Insure Insertion Under This Heading Copy for Want Advertisements Should be in This Office Not Later Than Tuesday.

WANTED—5000 CASES 3-LB. TOMATOES, NEW PACK. Address, J. D. SHEARMAN, Indianapolis, Ind.

WANTED — A FIRST-CLASS CORN PROCESSOR TO go to Indiana. Address H. S. GRIGGS, 42 River St., Chicago.

WANTED—POSITION AS SUPT. OR MANAGER OF canning factory for 1905. First class manager of help, have had 17 years experience Can give best of references. Address W. B. care CANNER.

WANTED—POSITION BY PICKLE AND PRESERVE manufacturer. Thirty years experience as foreman, manager and salesman. Address S., 284 South Union Street, Grand Rapids, Michigan.

WANTED—PROCESOR WHO THOROUGHLY UNderstands canning of Sauer Kraut and Hominy. Prefer man who understands automatic machinery. Address J. S. care CANNER.

WANTED—SITUATION AS PROCESSOR AND MANager of canning factory for 1905, by one that understands processing of all kinds; first class manager of help; can give best of references. Address "B. B." care of THE CANNER.

WANTED—SITUATION AS PRESERVE, JAM, CATsup, Boston pie filler, mince meat maker; also canner and compounder; good manager of help; 25 years' experience; can furnish the best of references. Address, HENRY, 2633 Cook St., Cincinnati, Ohio.

WANTED—A SKILLED MECHANICAL ENGINEER and constructor, with 17 years' practical experience in the canning of fruits and vegetables, will accept a position as superintendent of a canning factory for the season of 1905. Would like to hear from parties who want a man who is familiar with up-to-date machinery and is capable of fitting up and operating a new plant. Address O. K., care THE CANNER.

FOR SALE—SEED PEAS, SURPRISE, ALASKA, Horsfords True Stock, grown under our own supervision from pedigree stock seed. Quotations and samples on application. Ask for catalogue. VAUGHAN'S SEED STORE, New York and Chicago.

FOR SALE—BEST LOCK SEAMED CANS ON THE market; fully guaranteed; 3 lb size $17.25 per thousand; 2 lb size $14.00 per thousand. Good strong Shooks, 3-lb size 8c each, 2 lb size 6¼c each. Best white oak iron hooped Pulp barrels at $1.35 each. All for immediate shipment. Only a few left. Address, J. D. SHEARMAN, Indianapolis, Ind.

FOR SALE—SHEARMAN'S IMPERIAL PRESERVAtive; wholesome, safe and reliable. The best article known for the purpose. Put up in packages each containing correct amount for one barrel of Pulp. Price for 100 packages $27.50; for 50 packages $15.00. Address, J. D. SHEARMAN, Indianapolis, Ind.

FOR SALE—ONE CROSBY BODY FORMER AND Lock Seamer in good order. Four Stevenson Triple Can Testers. One Baldauf String Bean Filler. Address, THE SEARS & NICHOLS CO., Chillicothe, O.

CONNECTICUT GROWN SEED CORN.

FALL PRICES NOW READY — OUR CROP FAIR yield, excellent quality, high vitality assured. Write for quotations. Remember Connecticut grown corn contains more starch and sugar than that grown elsewhere. Address, THE EVERETT B. CLARK CO., Milford, Conn.

EVERGREEN SWEET CORN SEED!

THE NEW 1904 CROP IS JUST ABOUT SAFE IN THIS vicinity. Ears well developed, generally straight-rowed, kernels remarkably free from worm ravages; there is very little smut in the fields. Nebraska sweet corn again proved by this year's result that it is a plucky vigorous seed. Canners and growers of sweet corn kindly requested to correspond with undersigned for prices and other desired information. A. C. LEDERMAN, Grand Island, Nebraska.

CODE BOOKS.

IN RESPONSE TO SEVERAL INQUIRIES, WE HAVE arranged to accept orders for any and all Codes published, other than those intended for strictly private use. We cannot discount publishers' prices, but by reason of prompt service, free delivery, and saving you the inconvenience of separate order to each publisher, this bureau of distribution will, it is thought, prove useful to all. Send in a memorandum of your requirements at any time to O. L. DEMING, care CANNER AND DRIED FRUIT PACKER.

MONEY LOANED ON CANNED GOODS BY WAKEM & McLaughlin, Inc., Chicago. Our ten warehouses give us the largest storage plant in America west of New York, and we make a specialty of storing CANNED GOODS. We store fully 75% of all canned goods stocks stored in Chicago, whether by packers or jobbers. We get the business because our warehouses are of even and warm temperature throughout the winter and because we have the best facilities, ARE RESPONSIBLE, furnish free delivery by rail and boat; also do labeling when desired. It is as important to be assured of the responsibility of the warehouse where you store your goods as to investigate the soundness of the bank where you desposit your money. It is much cheaper for the packer to store his surplus goods in Chicago—WHERE THEY ARE ON THE SPOT—than to carry them at the factory, where he assumes his own responsibility, pays a high rate of insurance, and in addition may have to keep a fire going to prevent damage to the goods by frost. Canned goods on the spot command a premium very often of 5 to 10c a dozen over goods at packer's plant. References, all canned goods brokers, shippers and jobbers in Chicago. Addess for rates and further information, WAKEM & McLAUGHLIN, Inc., Chicago.

by the revolution of the turn-table rather than by the movement of the iron.

From the soldering table the cans are taken to another room in which they are placed in large square iron vessels, open at the top and holding several thousand "quart" cans. The vessels are then immersed in boiling water for two hours. This accomplishes a fourfold purpose: (1) The cooking of the fish is completed; (2) the bones are softened; (3) the bacteria in the oil and fish are killed, which would otherwise produce putrefaction; (4) the presence of leaks in the cans is disclosed.

After cooling, the cans are placed in dry sawdust and stirred from time to time; this absorbs the oil and moisture on the surface and renders the cans clean and ready for packing.

There is a comparatively small proportion of the fish prepared as "boneless sardines," which are rendered "boneless" by bending the caudal peduncle until the backbone breaks, and then drawing out the verte-

bral column with special tweezers or pincers. Fish intended for this purpose require more prolonged drying (2 or 3 hours), so that the muscular tissue may separate more completely from the vertebrae. Only fish 60 mm. long or over are made "boneless," and of even the larger fish only a small quantity is so treated. The best sardines are not so prepared, as they are fresher when they reach the cooking room, having required only one-half or one-third the time for preparation up to that stage. The "boneless" fish, while undergoing the additional drying, are deteriorating. The removal of the backbone adds about 6 per cent to the value of the fish, although the women who prepare them receive no additional wages.

Tin plate for sardine cans is manufactured at Nantes and other places in France. In Concarneau, Nantes, Hennebont and elsewhere cans are made for the canneries at special establishments and are sent to the factories in the same boxes in which they are subsequently shipped when filled. At Hennebont there is a plant for the decoration of tin plate.

Most of the canning factories receive their cans ready-made, but same simply have the separate parts cut, and during the winter give employment to the can-makers. Nearly all of the sardine cans are now provided with keys, which are placed on the cans as the sardines are boxed for market. The sardines of the best quality have keys for use on the side or edge of the can, rather than on the top, which remove a thin strip of tin.

Labeling of French sardines is an important branch of the canning business, and although the use of labels is not required by French law, labeling is almost invariably practiced. The most popular and generally employed label is that which is stamped on the tin. Very few paper labels are used, and these are chiefly for special French trade. Some of the best grades of sardines are labeled with brass labels of oval or oblong shape, attached to the side of the cans by solder.

COMPARISON OF FRENCH AND AMERICAN SARDINES.

Observation has shown that French sardines, when of the best quality, have a flavor and richness which make them preferable to any sardine prepared on the Atlantic coast of the United States from the young sea herring; French sardines of average grade, even when canned in peanut and cottonseed oil, are much superior in palatability to the great bulk of the American output; while the cheaper grades of French sardines—which unfortunately find a ready market in the United States—are certainly not preferable to much of the native pack.

The conditions which underlie the general superiority of the French canned sardines, and the steps which may be adopted in America for narrowing the gap which now separates the product of the two countries, appear to the writer to be chiefly as follows:

(1) The methods adopted in the French sardine fishery result in the landing of the fish in excellent condition. This is the main object and is never lost sight of. The fish are caught singly in a delicate mesh, removed by hand, carefully kept on board the boats so as to avoid crowding and mashing, counted by hand into small baskets, taken to the factories within a few hours after being caught, and promptly put through the preserving processes, so that ordinarily the deterioration which ensues is not worthy of mention. The sardine fishery on the coast of Maine is a weir fishery and the unit of measure is not the individual fish, as in France, but the hogshead. A large number of fish—sometimes a vast school—may be in a weir at one time, and are often held in the weir for many hours, sometimes for several days, during which they are without food, are incessantly harassed by their fellows and by other fish, and necessarily undergo deterioration; they are then taken from the trap with large dip nets and transferred to the collecting boat, where they are piled deep in bins or in the hold, and are often many hours in reaching the cannery. There the unloading results in further mashing, crushing and bruising, so that by the time the sardines reach the cooking room they have lost so much of their flavor and firmness that no amount of subsequent care and no kind of oil or spice can replace or restore their quality. Although fish are liable to more rapid decomposition after capture than any other class of food animals, there are no products with which greater liberties are taken, and none in which the lack of care results so disastrously; this is especially true of the American sardine, and, in the writer's opinion, is largely responsible for the unsatisfactory quality of the canned fish.

(2) In France the sardines caught in the early part of the season are not canned, because they are not in the best condition. It is only after the fish have become fat that they are considered suitable for canning. The fattening depends on an abundance of proper food, and along with it is an improvement in the flavor and general quality of the flesh. In the case of our sardines, fishing for the canneries is carried on from April to December, without reference to the fatness of the fish.

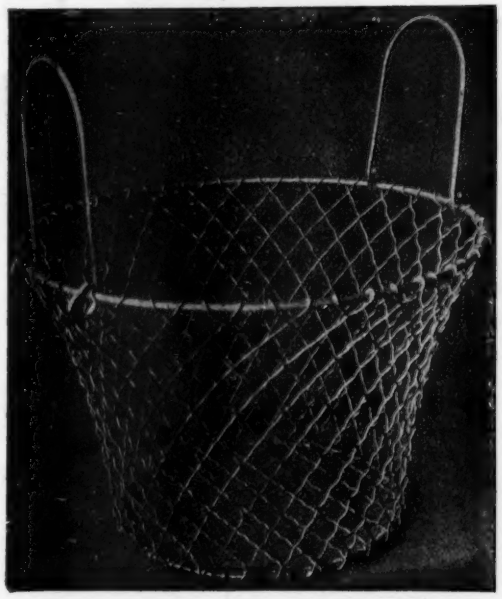
While the young sea herring is an excellent fish, it may be admitted that even when at its best its meat is inferior to that of the fat young pilchard in richness. The latter has a peculiar flavor which, to a considerable degree, is preserved in canning, and which probably can not be successfully imitated in the sea herring. However, the difference in flavor between the French and the American sardines, on which many persons lay much stress, appears to the writer to be of only secondary importance. The taste for French sardines has been acquired and perpetuated in the United States because of the long-continued unsatisfactory quality of American sardines. The herring is naturally no less wholesome than the pilchard; if it is caught for canning only when in prime condition, and if, in the form of canned sardines, it is placed on the markets with the minimum amount of deterioration and with such adjuvants in the way of oil, spices, etc., as may be suitable, it should and will receive ample recognition at home, and meet with a constantly increasing demand, at prices that now are hardly dreamed of.

The history of a few canneries on our east coast during recent years has shown that a very marked improvement in the quality of American sardines is entirely practicable and, furthermore, is highly appreciated by consumers, as evidenced by the much higher prices they are willing to pay and the steady demand beyond the capacity of the factories. With regard to the sardines of the Pacific coast of the United States, there is no reason why they should not, when properly canned, prove equal to the French fish in every respect. The high reputation which has been acquired by the comparatively small quantities packed in California during the past five or six years, and the excellent prices which they have commanded, argue well for the success of an extensive business.

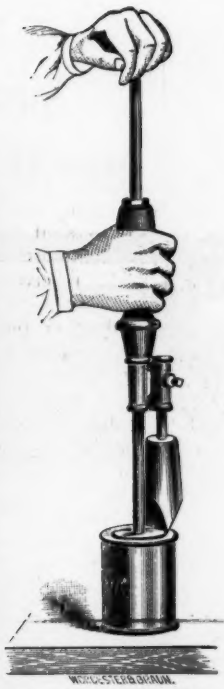
Sundries—If it's used in a Canning Factory we can furnish it.

Special Tomato Peeling Knife (actual size)

Peeling Checks



Wire Tomato Scalding Basket—Used where the scalding work is done by hand



Tillery Capping Coppers

Can Tongs

Wooden

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Soldering Coppers

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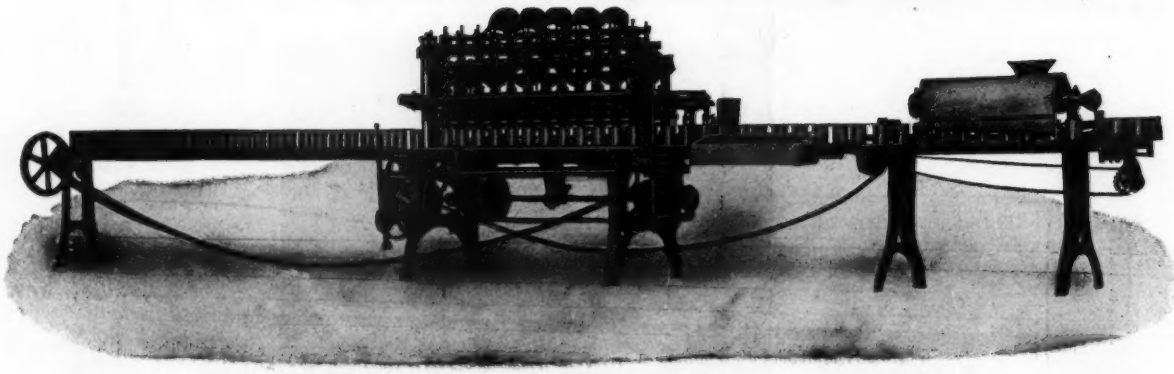
Capping Steels

Sprague Canning Machinery Co.

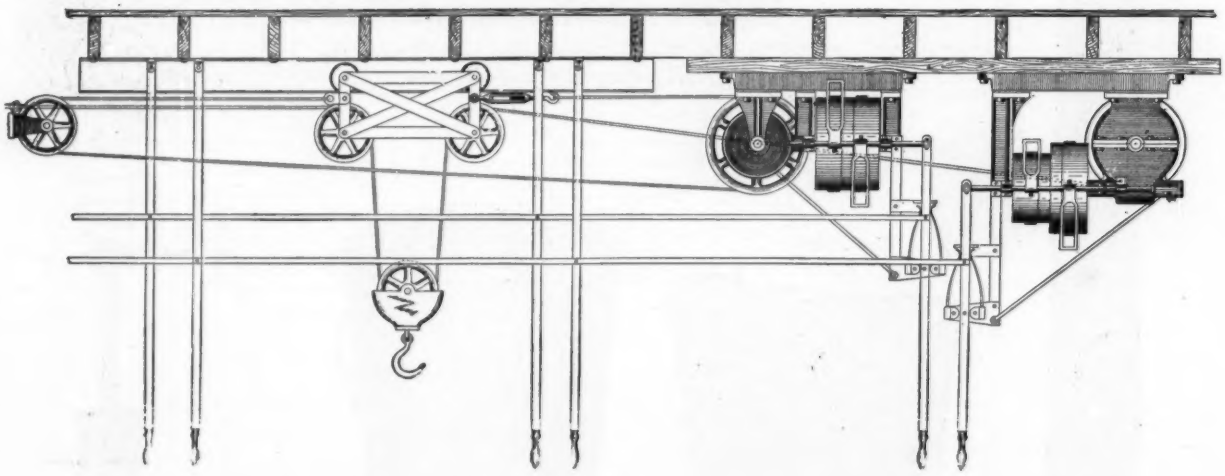
DANIEL G. TRENCH & CO., General Agents

42 River Street, CHICAGO, ILL.



The Hawkins Capper

The Standard Capping Machine of America



The Hawkins Power Hoist and Carrying Machine

The most simple, durable and effective hoist on the market

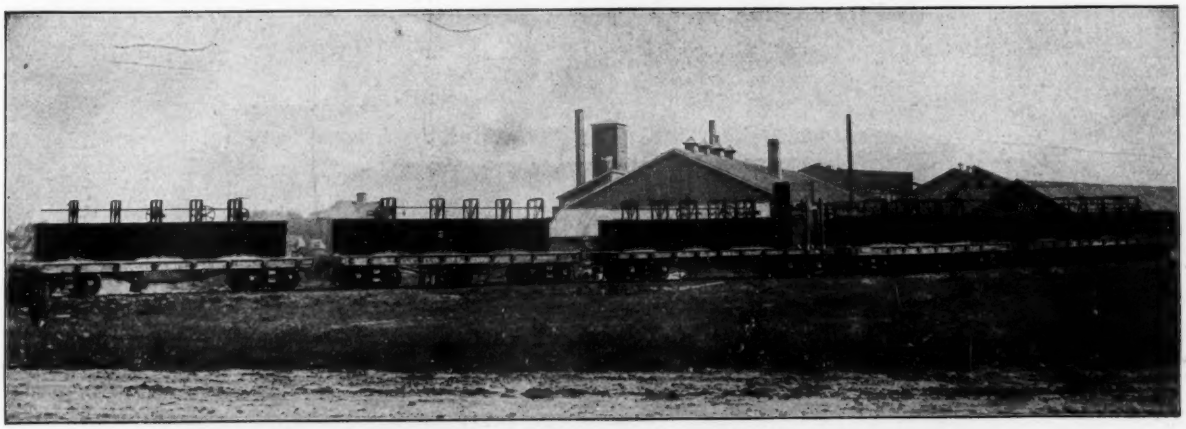
We make a full line of Processing Kettles, Retorts, Etc.

Sprague Canning Machinery Co.

DANIEL G. TRENCH & CO., General Agents

42 River Street, CHICAGO, ILL.

The Automatic Calcium Processing Systems, Installed this Season, are Giving Satisfaction in Every Way



View of train at our factory loaded with Calcium System Tanks

Testimonials

CIRCLEVILLE, OHIO, September 19, 1904

DANIEL G. TRENCH & CO.,
CHICAGO, ILL.

Gentlemen:—In reply to yours of recent date as to what we think of the Calcium System will say, after using the system at our two plants that we think the Calcium System far ahead of the retorts as to ***uniformity in cook, safety against swells, ease of management, and prefer it in every way to the retort system.***

Yours truly,

[Signed] R. G. McCOY, Pres.

CIRCLEVILLE, OHIO, September 22, 1904

DANIEL G. TRENCH & CO.
CHICAGO, ILL.

Gentlemen:—In answer to your inquiry of recent date as to what our opiuion is of the Calcium System, will say that this is our first season for the use of same, having heretofore been accustomed to the retort system; and as we are now just about through with the pack, will say that the system is so ***simple and easily managed that we did not have any worry that the corn would not all be properly processed,*** as you do with the old method of processing corn. The system is ***unform throughout and you are not bothered with swells*** as with the retort system of cooking; and from the experience we have had with it ***prefer it to any other we have used.***

Yours truly,

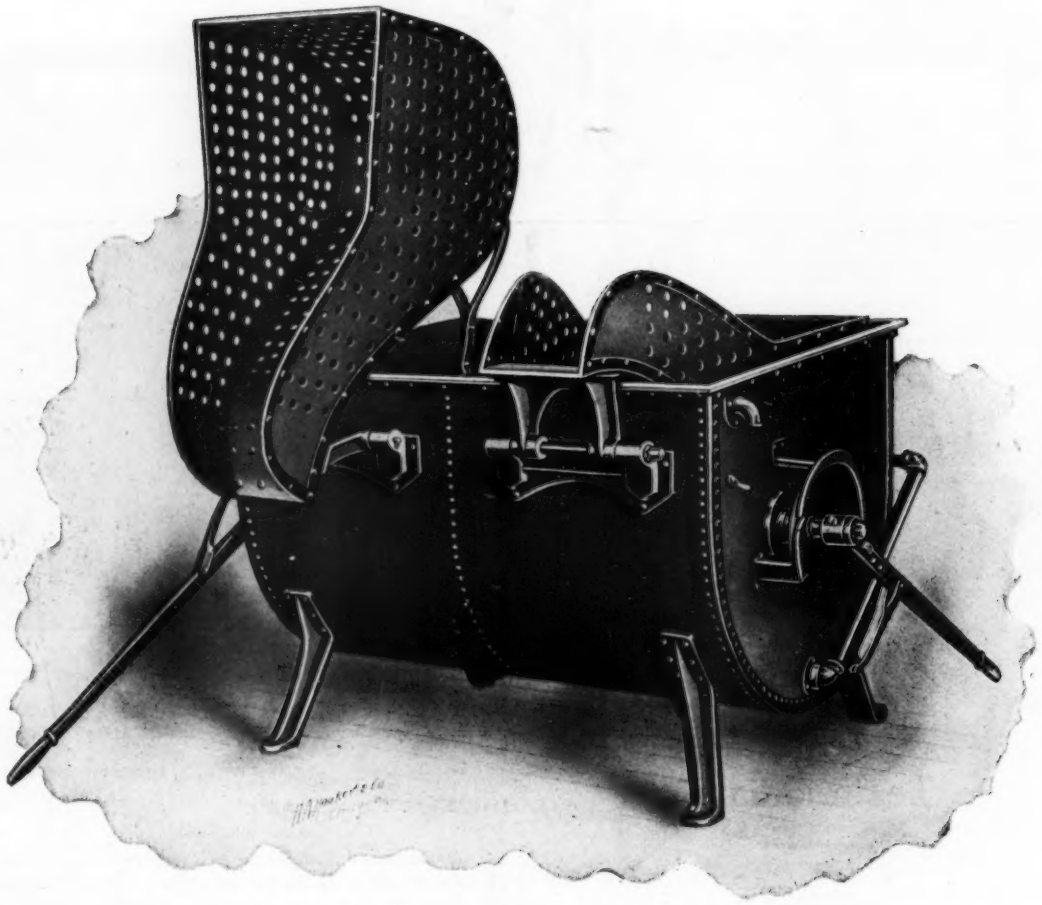
CENTRAL OHIO CANNING COMPANY,
[Signed] IRVIN F. SNYDER, Secretary

Sprague Canning Machinery Co.

DANIEL G. TRENCH & CO., General Agents

42 River Street, CHICAGO, ILL.

Tomato Machinery



Baker's Dump Tomato Scalder

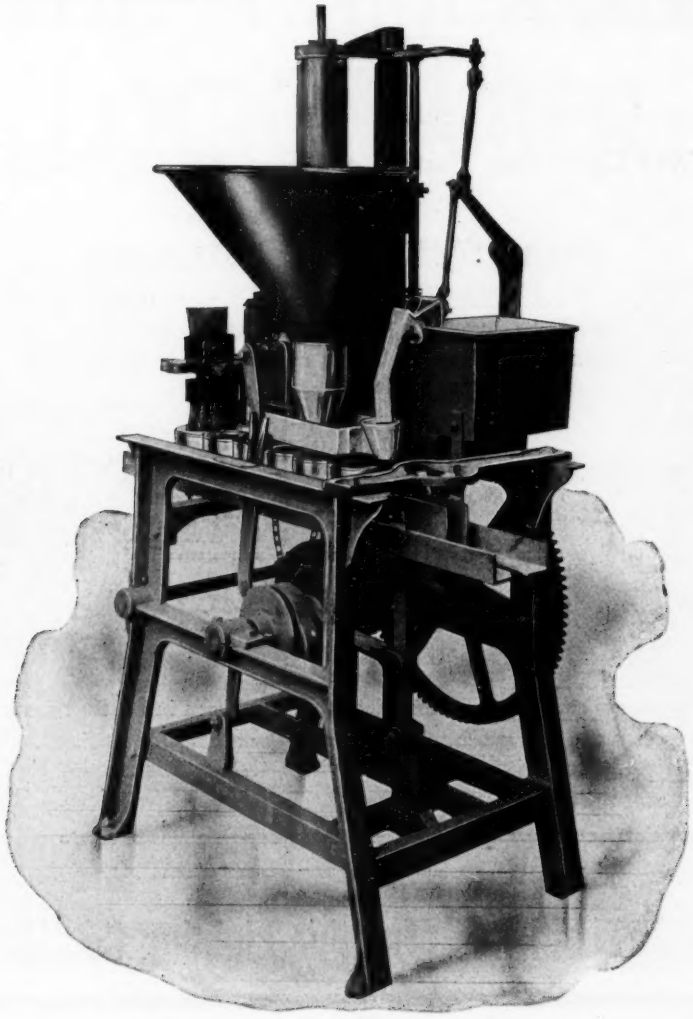
We make a full line of Tomato Canning Machinery, Scalders, Fillers, Exhausters, Etc.

Sprague Canning Machinery Co.

DANIEL G. TRENCH & CO., General Agents

42 River Street, CHICAGO, ILL.

Tomato Machinery



Improved Jersey Queen Tomato Filler

Makes great improvement and saving in packing tomatoes.
Does not mash the fruit.

We make a full line of Tomato Canning Machinery, Scalders, Fillers, Exhausters, Etc.

Sprague Canning Machinery Co.

DANIEL G. TRENCH & CO., General Agents

42 River Street, CHICAGO, ILL.

ESTABLISHED FORTY YEARS

Tirrill's Gas Machines

Combining { FOR HEATING AND LIGHTING } in Factories

Will Light Your Factory and Run Your Gas Firepots

TIRRILL EQUALIZING GAS GENERATOR

Has advantages over all others invented

The cheapest light in the world—A 70 candle incandescent light with this new burner costs less than half a cent an hour.

THIS IS THE FUEL GAS PLANT FOR YOUR

CAPPERS, FLOATERS

AND SEAMERS

Simplicity itself—anyone can operate it.

Strong in construction—machines that have been in use for twenty years and upward have cost practically nothing for repairs.

Safe—approved by all fire underwriters, testimonials running back over thirty years.

We make and sell Gas Firepots and Special Laboratory and Heating Burners

Write us for particulars **Tirrill Gas Machine Lighting Co.** 441 Broadway NEW YORK

S. JOHANCEN & CO.

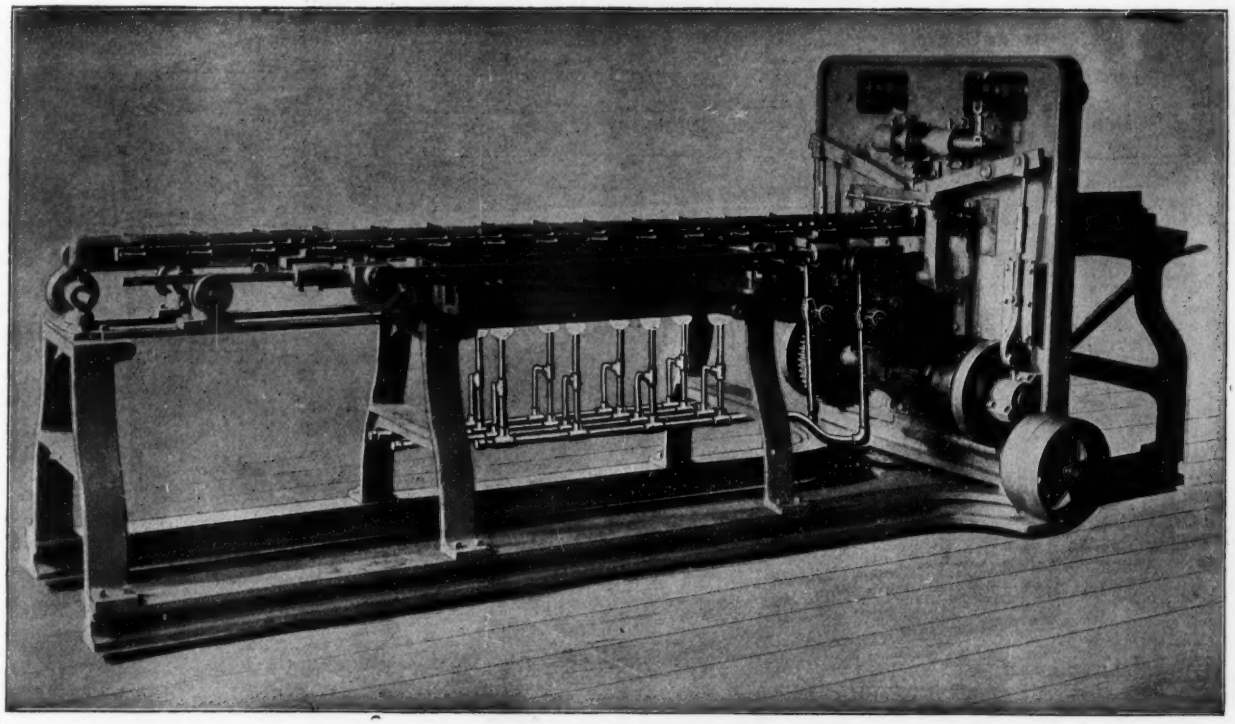
MANUFACTURERS AND DEALERS IN

Solder and Babbitt Metal, Soldering Irons, Acid and Spelter, Linotype and Stereotype Metal

Wire Solder a Specialty

737 EAST PRATT STREET BALTIMORE, MARYLAND

THE CAMERON LOCK-SEAMER



Guaranteed to "make cans" at the rate of 72 per minute, or 43,000 per day

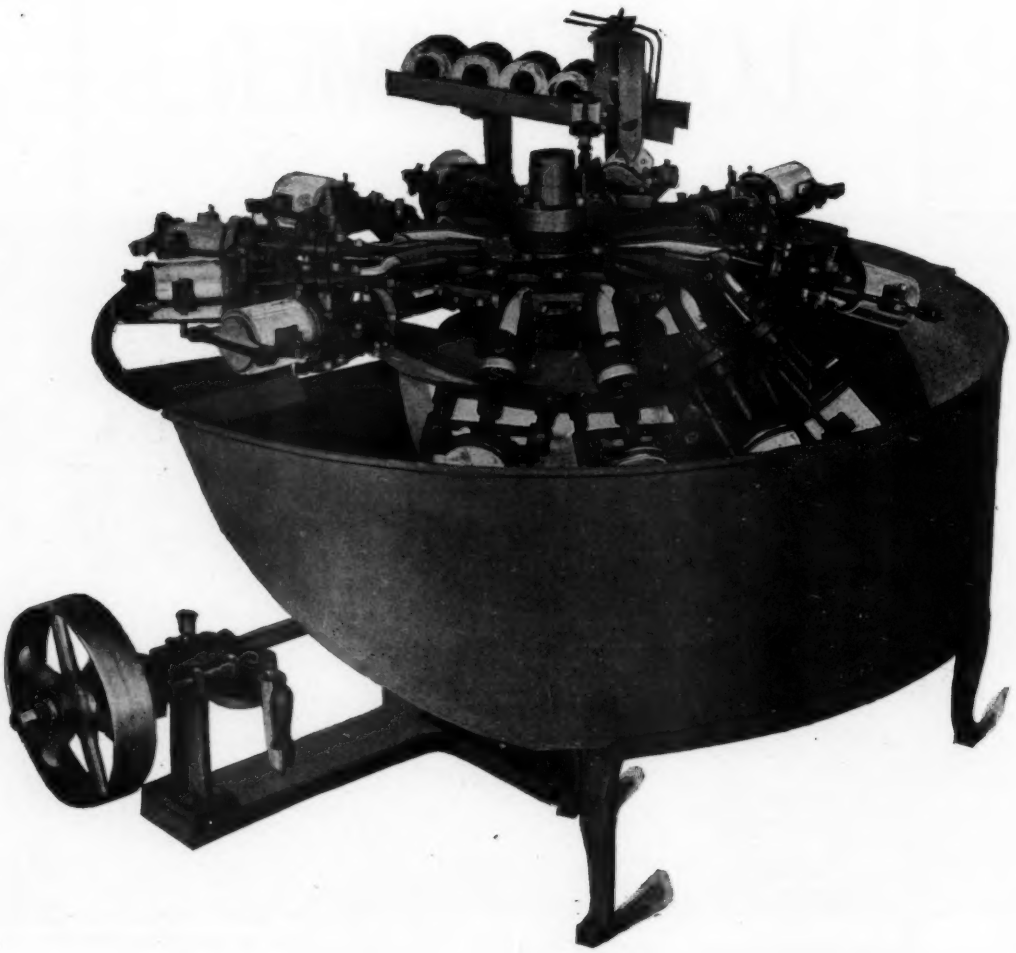
Manufactured by

TORRIS WOLD & COMPANY

CHICAGO, ILL.

General Eastern and Southern Selling Agents: HUGHES & CO., 4 Liberty Square, Boston, Mass.

Automatic Can Tester



The above is an illustration of our Automatic Can Tester in position, with water tank attached, ready for use. This machine is extensively used and is giving the fullest satisfaction. It is well constructed and can not easily get out of order. The machine is furnished with an automatic feed and delivery, requiring but one hand to operate it. With the tester is furnished an air compressor, air reservoir, water tank, gauge and blow-off valve, with full directions for setting up and using.

Capacity, 30,000 to 40,000 cans per day.

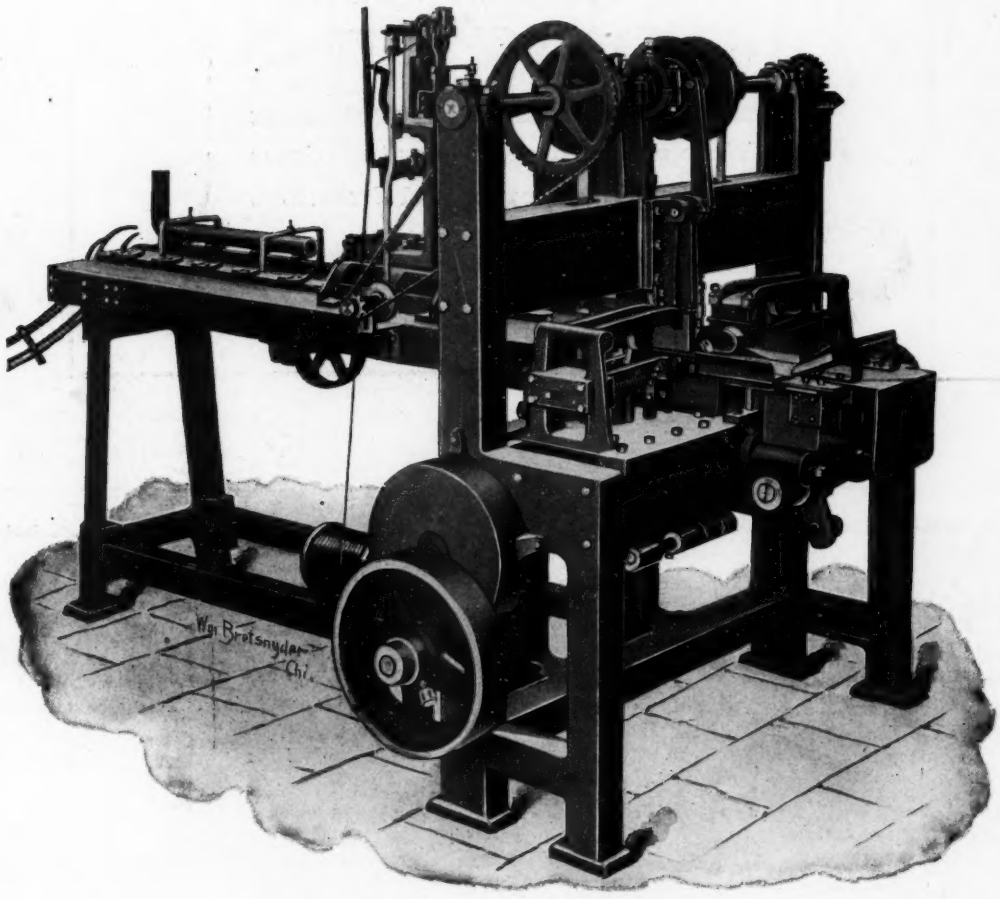
McDONALD MACHINE COMPANY

MANUFACTURERS OF ALL KINDS OF

CAN MAKING MACHINERY

Fortieth Street and Wentworth Avenue, CHICAGO

Automatic Lock Seamer



The above cut represents our New Body Making Machine, especially adapted for making the bodies of fruit, vegetables and condensed milk cans.

This Seamer has a capacity of from 30,000 to 40,000 bodies per day, and will be found a most useful machine in any modern can plant

McDONALD MACHINE COMPANY

MANUFACTURERS OF ALL KINDS OF
CAN MAKING MACHINERY

Fortieth Street and Wentworth Avenue, CHICAGO

If you have any accumulation of

Tin, Lead and Solder

DROSSES

Write us—we are *buyers* at all times
Also of Scrap Copper and Brass, Etc.

B. Lissberger & Co., .: New York.

Standard Soldering Flux

IS MADE in the finest equipped plant in the world for the manufacture of soldering flux and is used by the largest consumers in the world, including the entire system of the American Can Co.; The Norton Mfg. Co., Hamilton, Ont.; The Wheeling Can Co., Wheeling, W. Va.; Erie Preserving Co., Buffalo, N. Y.; and all of the large can makers and packers in this country, Canada and abroad.

Manufactured by

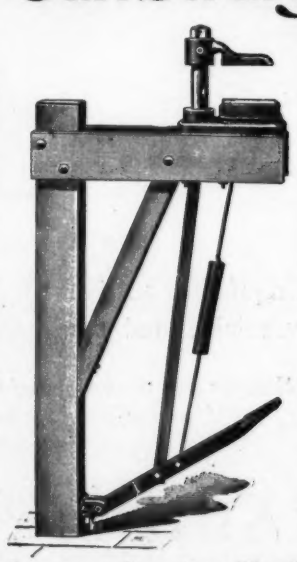
Marlou Chemical Company

Jersey City, N. J., U. S. A.

General Western Agents: JAMES M. WAIT & CO., 42 River Street, Chicago, Ill.

NICKLAUS'

Can Straightener



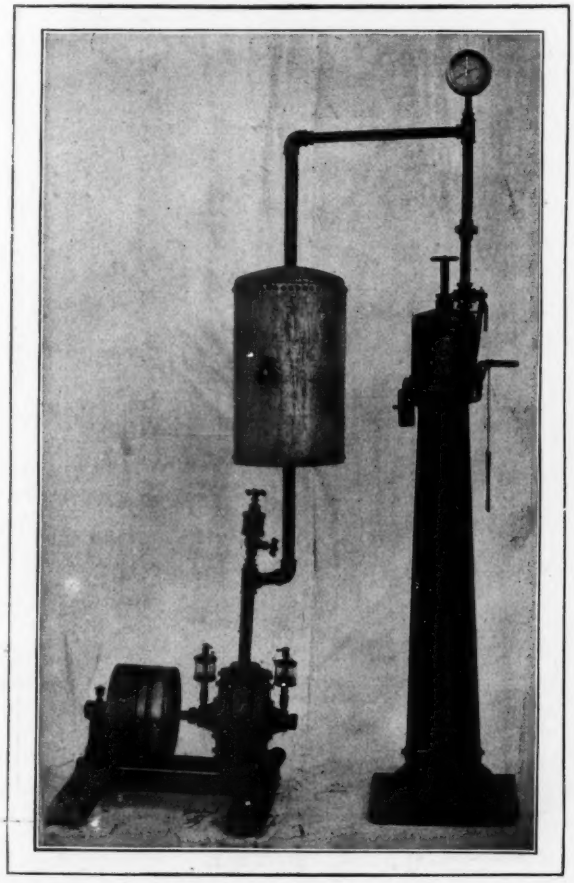
A very useful and effective machine in any canning factory. Its operation so simple that it needs no explanation. :: For price and further particulars, address

Sprague Canning Machinery Company

42 River St., CHICAGO, ILL.

THE BEST MACHINERY

FOR CANNING COLD PRODUCTS IN GLASS BY VACUUM PROCESS



Write us for any information concerning it

SAFE GLASS COMPANY ∴ Upland, Ind.

U-NO-ME FRUIT JAR

To Our Patrons: Watch this and the opposite page from month to month for full size cuts of our latest designs in Packers Glass Ware and if you do not see what you want, send us a sample, or, rough draft and we will get out the moulds for it if practical and the order will justify

The Safe Glass Co.

MANUFACTURERS OF

GLASS JARS FOR CANNERS

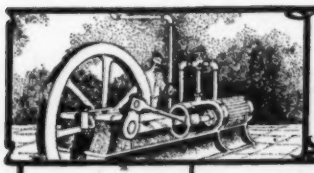
Vacuum and Preserve Jars

UPLAND, INDIANA

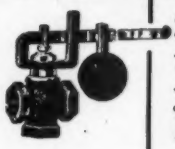
PATENTED FEBRUARY 10, 1903.

TALL FLUTED POUND

We take pride in presenting our full size cut of our 20 ounce U-NO-ME Fruit Jar on the opposite page, patent for which closure was granted December 30th, 1902, and also the above full size cut of our one pound Preserve Jar, patent for which closure was granted February 10th, 1903, because they show the last and best efforts in these lines of inventions and *because* they come at an opportune moment to meet the demand for glass packages.



TRY CHANNON



Send us your inquiries or a trial order; we will surprise you with quick deliveries, high-class goods, low prices

Complete Stocks of Pipe, Valves, Fittings, Injectors, Ejectors, Jet Pumps, Steam Pumps, Steam Traps, Oil Extractors, Oil Filters, Oil Tanks, Oils, Greases, Oilers, Oil Cups, Grease Cups, Fillers, Torches, Leather Cups, Valve Discs, Gaskets, Steam Gauges

Flat Bead Fittings

Owing to the demand for flat beaded fittings, we have just put in a large stock "K. J." goods.

These fittings have been found to be more easily put on and taken off, as the flat bead presents a larger surface for the wrench.

They are made from new patterns, are well proportioned, heavy, nicely finished, and all threads are perfect. Your engineer will want them.

HUXLEY VALVES

Practically Non-Destructible, No Re-Grinding, Renewable Parts

You have been looking for them.

None better or more economical.

Compare the weight of the Huxley Valves with the Common Standard Valves

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¼ in.	½	¾
⅜ in.	7/8	1
½ in.	1 1/16	1¼
¾ in.	1 5/8	2½
1 in.	2½	3 7/8
1¼ in.	2½	4¾
1½ in.	3 7/8	6½
2 in.	5¾	10¼

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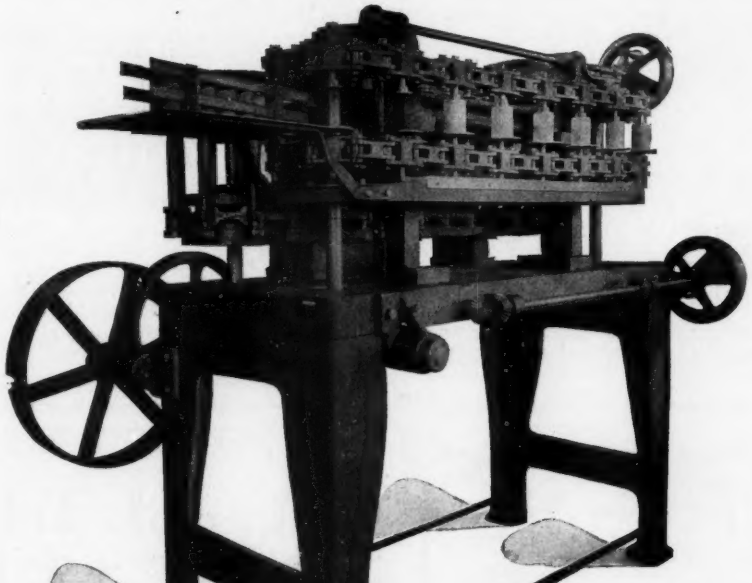

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